

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

FORM 10-K

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

For the fiscal year ended December 31, 2024

☐ 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
(State of other jurisdiction of
incorporation or organization)

9745 Businesspark Ave
San Diego, CA
(Address of principal executive offices)

20-4494098
(I.R.S. Employer
Identification Number)

92131
(Zip Code)

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

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

Title of each class
None

Trading symbol
None

Name of each exchange on which registered
None

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

Common Stock, \$0.001 par value per share

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

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

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

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

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

Large accelerated filer

☐ Accelerated filer

☐

Non-accelerated filer

☒ Smaller reporting company

☒

Emerging growth company

☐

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

Indicate by check mark 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. ☐

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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

The aggregate market value of voting and non-voting common equity held by non-affiliates of the registrant was approximately \$222,031 based upon the closing price of the common stock on June 28, 2024 (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.

At March 25, 2025 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 2024 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, and sales 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 Part I, Item 1A. Risk Factors of this Annual Report. This discussion should be read in conjunction with the consolidated financial statements and accompanying 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 \$9.1 million and \$7.8 million for the years ended December 31, 2024 and 2023, 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 Parkinson's disease 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.

Our therapeutic 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. Refer to Part I, Item 1A. Risk Factors for further discussion.

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"), Lifeline Cell Technology, LLC ("LCT"), Lifeline Skin Care, Inc. ("LSC"), and Cyto Therapeutics.

Cyto Therapeutics was registered in the state of Victoria, Australia in December 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. Our filings with the Securities and Exchange Commission (the "SEC") are available free of charge on the SEC's website at www.sec.gov and our website at www.internationalstemcell.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 applications of our technology are Parkinson's disease ("PD"), traumatic brain injury ("TBI"), and stroke. Using our proprietary technologies and know-how, we are creating neural stem cells from hpSCs as a potential treatment of PD, TBI, and stroke.

PD: 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.

We announced a 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.

Stroke: 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.

TBI: 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.

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

ISCO's wholly owned subsidiary Lifeline Skin Care, Inc. ("LSC") develops, manufactures and sells anti-aging skin care products based on two core technologies: encapsulated extract derived from hpSC and specially selected targeted small molecules. At December 31, 2024, LSC's products include:

- ProPlus Advanced Defense Complex
- ProPlus Advanced Recovery Complex
- ProPlus Eye Firming Complex
- ProPlus Neck Firming Complex
- ProPlus Advanced Aqueous 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, and ecommerce partners.

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 technique 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 cells for the study of toxicity, cystic fibrosis, asthma and pathogenesis.
- Human mammary epithelial cells 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 one clinical stage program and several scientific 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. Leveraging our proprietary technologies and know-how, we have developed neural stem cells derived from human pluripotent stem cells ("hpSCs") as a potential treatment for PD and other central nervous system diseases, 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 skin care category include skin brighteners, anti-aging creams and serums, toners, masks, anti-acne and sun protection products.

Facial skin care products that provide anti-aging benefits represent a significant portion of the global skin care market. Increased longevity leads consumers to seek out high quality, technologically advanced skin care 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 2022, ISCO was issued one patent for technology generated by our R&D team. The patent, issued in the USA, covers the use of Parthenogenic Activation of Human Oocytes. At December 31, 2024, we held a total of 39 patents. These patents expire from January 2025 through May 2037.

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.

In December 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 (a subsidiary of Allergan), and Murad. In the field of research products, our primary competitors for human cells, media and reagents are Lonza, EMD Millipore, Life Technologies (a subsidiary of 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 53% of our total product sales for the year ended December 31, 2024 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 vary, 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, refer to Part III, Item 10. Directors, Executive Officers and Corporate Governance of this Annual Report on Form 10-K.

Human Capital

At December 31, 2024, including our 2 executive officers, we had 32 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 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, and we 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, 2024, 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 2025 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, such as the novel coronavirus outbreak or other pandemics arising globally, and its impact 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 major health concerns, such as the novel coronavirus outbreak, and its impact 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;
- FDA and other regulatory authorities may require expansion of the size and scope of the clinical trials; and/or
- a pandemic, epidemic or outbreak of a contagious disease, such as the global pandemic of the novel coronavirus outbreak, 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, 2024, we derived approximately 53% of our revenues from one customer.

During the year ended December 31, 2024, one customer accounted for 53% 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 the novel coronavirus outbreak, component or material shortages, cost increases, acquisitions, insolvency, bankruptcy, business shutdowns, trade restrictions, changes in legal or regulatory requirements, or other similar problems.

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 novel coronavirus 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.

Our business is subject to risks arising from epidemic diseases or other public health emergencies.

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 occurrence of any pandemic or other public health emergency could have a material adverse effect on our business, financial condition and results of operations.

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, such as the novel coronavirus outbreak, or other pandemics arising globally, and its impact 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.

At December 31, 2024, Dr. Andrey Semechkin, Chief Executive Officer and Co-Chairman of the Board of Directors, and Dr. Russell Kem, Executive Vice President and Chief Scientific Officer and a director, beneficially own approximately 59% 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, 2024. As a result of their holdings and the rights, preferences, and privileges of those series of preferred stock, Dr. Andrey Semechkin and Dr. Russell Kem 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 involuntarily 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 \$0.12 to \$9.69 per share at December 31, 2024). 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. During 2023 an analysis was completed to determine whether any ownership change has occurred, as defined by IRC Sections 382 and 383, and it was determined that significant ownership changes occurred in January 2009 and November 2015. As a result of the ownership changes, under IRC Sections 382 and 383, the net operating loss and tax credit carryforwards that were generated in years prior to 2015 have been significantly limited and a substantial unused amount will expire. During 2023 an analysis was completed to determine whether any ownership change has occurred, as defined by IRC Sections 382 and 383, and it was determined that significant ownership changes occurred in January 2009 and November 2015. As a result of the ownership changes, under IRC Sections 382 and 383, the net operating loss and tax credit carryforwards that were generated in years prior to 2015 have been significantly limited and a substantial unused amount will expire. 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 1C. CYBERSECURITY.

We continue to evaluate and improve the capabilities of our people, processes, and technologies to address our cybersecurity risks. Our cybersecurity risks, and the controls designed to mitigate those risks, are integrated into our overall risk management governance, and are reviewed by our Board of Directors annually.

Risk Management and Strategy

At December 31, 2024, we have implemented thorough cybersecurity and data protection policies and procedures. Risks from cybersecurity threats are often assessed as a part of our broader risk management activities and as a fundamental component of our internal control system. Our employees and contractors are required to complete annual cybersecurity awareness trainings, including specific topics related to browser safety, data protection, and email fraud. We have competent employees and consultants with a firm understanding of cybersecurity related to our industry. We invest in advanced technologies for continuous cybersecurity monitoring across our information technology environment which are designed to prevent, detect, and minimize cybersecurity attacks, as well as notify management of such attacks in a timely manner.

Our Information Technology General Controls are firmly established based on recognized industry standards and addresses matters such as risk management, data backup, and disaster recovery. We also engage an outsourced information technology consultant to actively monitor and mitigate security threats, as well as identify vulnerabilities and respond to all cybersecurity incidents affecting us, including timely communication of significant security incidents to senior business leadership and our Board of Directors.

Governance

Our Board of Directors is responsible for overseeing our cyber security risk management and strategy. Our senior leadership, including our Chief Executive Officer and Principal Financial Officer, frequently meets with and provides informative updates to our Board of Directors regarding our cybersecurity risks and activities, including any recent cyber security incidents and related responses, cybersecurity systems testing, and activities of third parties.

Our Information Security Team is outsourced to two separate service providers, one of which oversees all aspects of IT and facilities to ensure the Company's infrastructure, including intellectual property, is protected. Specifically, this service provider is tasked with communicating any issues or updates necessary and possesses the appropriate level of expertise to assess and manage the Company's cyber security risk. This service provider reports to our Principal Financial Officer, who oversees prevention, detection, mitigation, and remediation efforts through regular communication and reporting channels within our organization and with service providers.

Cybersecurity Threat Disclosure

While we have not, at the date of this Annual Report, experienced a cybersecurity threat or incident that has had a material impact on our business or operations, there can be no guarantee that we will not experience an incident that results in a material impact to our business or operations in the future. In addition, cybersecurity threats are constantly evolving and increasing in sophistication, which increases the difficulty of successfully defending against them or implementing adequate preventative measures. Refer to Part I, Item 1A. Risk Factors for further discussion of cybersecurity risks.

ITEM 2. PROPERTIES

In October 2021, we entered into a joint lease agreement with S Real Estate Holding, LLC (an affiliate of our Chief Executive Officer and Executive Vice President, 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 as of the year ended December 31, 2024. As of January 2025, we are liable for 75% of total base rent and variable lease charges due under the amendment to the joint lease agreement. Refer to [Note 13 – Subsequent Events](#) within the consolidated financial statements for further discussion.

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. At December 31, 2024, the base rent was approximately \$19 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 reasonable 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

At December 31, 2024, we had 8,004,389 shares of common stock outstanding, and approximately 632 holders of record of our common stock, and we had 5,254,353 shares of preferred stock outstanding, and four holders of record of our preferred stock, with the 5,254,353 shares of preferred stock being convertible into 7,518,830 shares of common stock.

We trade on the OTC QX which 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 accompanying notes to those consolidated financial statements 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 Part I, Item 1A. Risk Factors 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 \$9.1 million and \$7.8 million for the years ended December 31, 2024 and 2023, 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).

Market Opportunity and Growth Strategy

Therapeutic Market – Clinical Applications of hpSCs for Disease Treatments

We believe that the most promising potential clinical applications of our technology are Parkinson's disease (PD), traumatic brain injury (TBI), and stroke. Using our proprietary technologies and know-how, we are creating neural stem cells from hpSCs as a potential treatment of PD, TBI, and stroke.

PD: 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.

We announced a 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.

Stroke: 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.

TBI: 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 Lifeline Skin Care, Inc. (LSC) develops, manufactures, and sells 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 Aqueous 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, and ecommerce partners.

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 (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, 2024 and 2023

The following table summarizes our results of operations for the years ended December 31, 2024 and 2023, together with the dollar and percent change in those items (in thousands):

	2024	Year Ended December 31, 2023	\$ Change	% Change
Product sales	\$ 9,085	\$ 7,789	\$ 1,296	17%
Cost of sales	3,764	3,181	583	18%
Profit margin	5,321	4,608	713	15%
As a % of revenues	59%	59%		
General and administrative	3,516	3,514	2	0%
Selling and marketing	1,216	1,246	(30)	(2%)
Research and development	657	511	146	29%
Other (expense) income, net	(141)	532	(673)	*
Net loss	\$ (209)	\$ (131)	\$ (78)	60%
As a % of revenues	(2%)	(2%)		

* denotes a change in excess of 100%

Product Sales

Product sales revenue for the year ended December 31, 2024 was \$9,085 thousand, compared to \$7,789 thousand for the year ended December 31, 2023. The increase of \$1,296 thousand, or 17%, was attributable to an increase of \$1,211 thousand and \$213 thousand in media and cell product sales, respectively, within our biomedical market segment primarily due to increases in original equipment manufacturer (OEM) sales. These increases were partially offset by a decrease of \$128 thousand in sales of our skin care products in our anti-aging market segment during 2024 compared to 2023 due to a decrease in demand.

Our OEM sales in our biomedical market segment have increased year-over-year and accounted for approximately 63% of biomedical product sales in 2024 as compared to 58% in 2023. The mix of media and cell product sales has remained relatively consistent with media product sales accounting for approximately 72% of biomedical product sales, up from 69% in 2023. The increase in biomedical product sales was therefore primarily driven by the increase in media product sales. The overall increase in biomedical product sales is believed to be the result of normalization of OEM planning systems and lead time measurement and is expected to remain a key component of our biomedical business.

Our anti-aging product line is sold to consumers exclusively through our ecommerce channel with less marketing and store front or medical office exposure contributing to the decrease in product sales.

Cost of Sales

Cost of sales for the year ended December 31, 2024 was \$3,764 thousand, compared to \$3,181 thousand for the year ended December 31, 2023. The increase of \$583 thousand, or 18%, was primarily attributable to an increase in biomedical product sales resulting in higher costs of direct materials of \$900 thousand, partially offset by positive manufacturing variances attributed to efficiencies from higher production volumes of approximately \$286 thousand. The net increase in cost of sales was also partially offset by an overall decrease in cost of sales in our anti-aging market segment of \$31 thousand as a result of a decrease in product sales.

Profit margin was 59% for both the years ended December 31, 2024 and 2023. Margins remained consistent despite slightly higher OEM sales as a result of manufacturing efficiencies in our biomedical market segment and normalization of some raw material costs post COVID.

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, 2024 was \$3,516 thousand, compared to \$3,514 thousand for the year ended December 31, 2023. The change in general and administrative expenses for the year ended December 31, 2024 was

primarily attributable to increases in personnel-related costs, including from salaries, benefits and travel expenses, of \$94 thousand, audit fees of \$92 thousand, temporary services of \$21 thousand, foreign currency loss due to unfavorable exchange rates of \$20 thousand, write off of bad debt of \$4 thousand and patent impairment from abandonment of \$2 thousand. These increases were offset by decreases in consulting fees of \$157 thousand, legal fees of \$42 thousand, D&O and other insurance related costs of \$19 thousand and \$12 thousand in other general and administrative expenses.

Our general and administrative expenses consist primarily of employee-related expenses including salaries, bonuses, benefits and stock-based compensation. Other significant costs include facility costs not otherwise included in or allocated to other departments, corporate legal fees not relating to patents, and fees for accounting and consulting services.

Selling and Marketing Expenses

Selling and marketing expenses for the year ended December 31, 2024 was \$1,216 thousand, compared to \$1,246 thousand for the year ended December 31, 2023. The decrease of \$30 thousand, or 2%, was primarily attributable to decreases in advertising costs, including creative and web service fees, of \$33 thousand, merchandising fees of \$18 thousand, marketing materials and other general expenses of \$10 thousand, dues and subscriptions of \$9 thousand, and personnel-related costs of \$5 thousand. These decreases were partially offset by increases in temporary services of \$29 thousand and in license fees of \$4 thousand. The overall change in expense year-over-year is primarily attributable to a decrease in selling and marketing expenses attributable to our anti-aging market segment.

Our sales and marketing expenses consist primarily of personnel-related expenses, such as salaries, benefits, and stock-based compensation, facility costs not otherwise included in or allocated to other departments, as well as marketing material costs, permits and licenses for ecommerce, and other advertising type expenses.

Research and Development Expenses

Research and development expenses for the year ended December 31, 2024 was \$657 thousand, compared to \$511 thousand for the year ended December 31, 2023. The increase of \$146 thousand, or 29%, was primarily attributable to increases in personnel-related costs, including increased salaries, stock-based compensation awards grants and travel expense, of \$144 thousand, depreciation expense of \$9 thousand and other general expenses of \$7 thousand, as well as a decrease in the Australian research and development tax credit for qualified expenditures incurred by our Australian subsidiary, Cyto Therapeutics, of \$5 thousand. The increase in research and development expense was partially offset by decreases in general materials and supplies of \$15 thousand and consulting fees of \$4 thousand.

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.

Other Income (Expense), Net

Other expense, net for the year ended December 31, 2024 was \$141 thousand, compared to other income, net of \$532 thousand for the year ended December 31, 2023. The decrease in other income (expense), net of \$673 thousand was primarily attributable to the one-time receipt of the Employee Retention Tax Credit for certain employment taxes enacted by the U.S. government in response to the COVID-19 outbreak of \$663 thousand in 2023 (refer to [Note 8 – Employee Retention Credit](#) within the accompanying consolidated financial statements for further discussion), which was partially offset by other expense. Other expense in both periods primarily relate to interest expense on our related party note payable (refer to [Note 10 – Related Party Transactions](#) within the accompanying consolidated financial statements for further discussion).

Liquidity and Capital Resources

The Company enters into contracts in the normal course of business with various third-party consultants and contract research organizations (CRO) for preclinical research, clinical trials and manufacturing activities. These contracts generally provide for termination upon notice. Actual expenses associated with these arrangements may be higher or lower due to various reasons, including but not limited to, progress of our development products, and enrollment in clinical trials. Other short-term and long-term commitments that would affect liquidity include lease obligations as well as related party debt repayments.

At December 31, 2024, we had an accumulated deficit of approximately \$110.7 million and have, on an annual basis, incurred net losses 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. At December 31, 2024, operating cash flows were positive and we had cash of \$1,230 thousand, compared to \$1,588 thousand at December 31, 2023.

Licensed Patents

The Company had 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 patents, along with the license agreement, expired at the end of July 2022. These patents were fully impaired in prior years and therefore the expiration did not result in any additional impairment for the year ended December 31, 2022. The Company does not anticipate any short-term liquidity effects from this obligation as we will no longer be liable for the annual licensing fee.

Cash Flows

Comparison of the Years Ended December 31, 2024 and 2023

The following table provides information regarding our cash flows for the years ended December 31, 2024 and 2023 (in thousands):

	Year Ended December 31,	
	2024	2023
Net cash provided by operating activities	\$ 13	\$ 929
Net cash used in investing activities	(171)	(83)
Net cash used in financing activities	(200)	—
Net (decrease) increase in cash	<u>\$ (358)</u>	<u>\$ 846</u>

Operating Cash Flows

For the year ended December 31, 2024, net cash provided by operating activities was \$13 thousand, resulting primarily from our net loss of \$209 thousand and net changes in operating assets and liabilities of \$809 thousand, consisting primarily of increases in accounts receivable of \$484 thousand, accrued liabilities of \$42 thousand and prepaid expenses and other current assets of \$27 thousand, and decreases in operating lease liabilities of \$276 thousand, accounts payable of \$178 thousand, and inventories of \$114 thousand. The decrease in cash is offset by non-cash adjustments to net loss of \$1,031 thousand pertaining to stock-based compensation expense, depreciation and amortization expense, non-cash operating lease expense, interest expense on our related party note payable, changes in inventory reserve and impairment of intangible assets. For the year ended December 31, 2023, net cash provided by operating activities was \$929 thousand, resulting primarily from our net loss of \$131 thousand, which includes the one-time receipt of the Employee Retention Tax Credit of \$663 thousand, and changes in operating assets and liabilities of \$3 thousand, offset by recurring non-cash adjustments to net loss of \$1,063 thousand, including stock-based compensation expense, depreciation and amortization expense, non-cash operating lease expense, interest expense on our related party note payable and changes in inventory reserve.

Investing Cash Flows

Net cash used in investing activities for the year ended December 31, 2024 was \$171 thousand, compared to \$83 thousand for the year ended December 31, 2023. The increase in cash used in investing activities was primarily attributable to purchases of property and equipment of \$166 thousand for lab and manufacturing equipment as compared to \$80 thousand used for leasehold improvements in 2023. There were also payments for patent licenses of \$5 thousand during the year ended December 31, 2024 versus \$3 thousand during the year ended December 31, 2023.

Financing Cash Flows

Net cash used in financing activities for the year ended December 31, 2024 was \$200 thousand, compared to no net cash flows provided by or used in financing activities for the year ended December 31, 2023. Cash used in financing activities was wholly attributable to the partial repayment of principal on our related party note payable (refer to [Note 10 – Related Party Transactions](#) within the accompanying consolidated financial statements for further discussion).

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 2025 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, such as the novel coronavirus outbreak, or other pandemics arising globally, and its impact 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 our assets. Further, if additional funds are obtained through arrangements with collaborative partners, these arrangements may require us to relinquish rights to some of our technologies, product candidates or products that we would 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 product initiatives.

We currently have no revenue generated from our principal operations in therapeutic and clinical product development through research and development efforts. 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 flows, the proper timing of our capital expenditures, and raising additional capital or financing in the future.

Critical Accounting 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 – Description of Business and Summary of Significant Accounting Policies](#) 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 inventories. 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.

Allowance for Excess and Obsolete Inventory

Our inventories, particularly within our biomedical market, consist 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 able to sell such inventory, any related reserves are reduced in the period of sale. The Company's allowance for excess and obsolete inventory was \$736 thousand and \$739 thousand at December 31, 2024 and 2023, respectively. A 10% change in our reserve estimate in total at December 31, 2024 would result in a change in reserve of approximately \$74 thousand. Our reserves are estimates which could vary significantly, either favorably or unfavorably, from actual results if future economic conditions, consumer demand and competitive environments differ from our expectations.

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 – Description of Business and Summary of Significant Accounting Policies](#) 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 accompanying 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) at 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, 2024, 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.

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 at December 31, 2024.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal controls during the year ended December 31, 2024, that materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

ITEM 9B. OTHER INFORMATION

During the three months ended December 31, 2024, no director or "officer" (as defined in Rule 16a-1(f) of the Exchange Act) of the Company adopted or terminated a "Rule 10b5-1 trading arrangement" or "non-Rule 10b5-1 trading arrangement," as each term is defined in Item 408 of Regulation S-K.

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, 2024, in connection with our 2024 Annual Meeting of Stockholders under the heading "Election of Directors." The information required by this Item regarding our Code of Conduct and Ethics is incorporated by reference to the information in the Proxy Statement, expected to be filed within 120 days of December 31, 2024, 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, 2024, under the caption "Corporate Governance."

At December 31, 2024, our executive officers were as follows:

Name	Position	Age
Andrey Semechkin	Co-Chairman and Chief Executive Officer	65
Russell Kern	Executive Vice President, Chief Scientific Officer, and Principal Financial Officer	39

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 30 years' experience creating and managing businesses across different industries and scientific sectors.

Russell Kern, Ph.D., Executive Vice President, Chief Scientific Officer, Principal Financial 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 stem 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.

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, 2024, 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, 2024, 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, 2024, 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, 2024, under the caption "Principal Accounting Fees and Services."

PART IV

ITEM 15. EXHIBITS AND 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 consolidated financial statements or accompanying 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 [Amended and Restated 2010 Equity Participation Plan dated September 21, 2023 \(incorporated by reference to Appendix A of the Registrant's Form 14C filed on September 27, 2023\).](#)
- 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 \(incorporated by reference to Exhibit 10.12 of the Registrant's Form 10-K filed on March 29, 2022\).](#)
- 10.13 [Lease Agreement dated November 30, 2021 \(incorporated by reference to Exhibit 10.13 of the Registrant's Form 10-K filed on March 29, 2022\).](#)
- 10.14 [Co-Tenant Agreement dated December 15, 2021 \(incorporated by reference to Exhibit 10.14 of the Registrant's Form 10-K filed on March 29, 2022\).](#)
- 10.15 [Form of Note issued on March 1, 2023 \(incorporated by reference to Exhibit 10.1 of Registrant's Form 8-K filed on March 16, 2023\).](#)
- 10.16 [Form of Note issued on September 15, 2023 \(incorporated by reference to Exhibit 10.1 of Registrant's Form 8-K filed on September 18, 2023\).](#)
- 10.17 [Form of Note issued on September 15, 2024 \(incorporated by reference to Exhibit 10.1 of Registrant's Form 8-K filed on September 17, 2024\).](#)
- 19.1* [Insider Trading Compliance Program](#)
- 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, P.C.](#)
- 24.1* Power of Attorney (included on signature page hereto)
- 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](#)
97.1 [Policy for Recovery of Erroneously Awarded Incentive Compensation](#)
101.SCH Inline XBRL Taxonomy Extension Schema with Embedded Linkbase Documents
104 Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Filed herewith.

(c) Financial Statement Schedules. Refer to Part IV, 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 28, 2025

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Andrey Semechkin and Russell Kern, jointly and severally, his attorneys-in-fact, each with the power of substitution, for him or her in any and all capacities, to sign any amendments to this Annual Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his substitute or substitutes may do or cause to be done by virtue hereof.

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 28, 2025
/s/ RUSSELL KERN Russell Kern	Executive Vice President, Chief Scientific Officer, and Director (Principal Financial and Accounting Officer)	March 28, 2025
/s/ DONALD A. WRIGHT Donald A. Wright	Co-Chairman of the Board	March 28, 2025
/s/ PAUL V. MAIER Paul V. Maier	Director	March 28, 2025

International Stem Cell Corporation and Subsidiaries
Index to Consolidated Financial Statements

<u>Report of Independent Registered Public Accounting Firm</u> (BDO USA, P.C.; San Diego, California; PCAOB ID No. 243)	Page <u>F-2</u>
<u>Consolidated Balance Sheets</u>	<u>F-4</u>
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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, 2024 and 2023, 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, 2024 and 2023, 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 an accumulated deficit, has historically incurred net losses, has not generated revenue from its principal operations in therapeutic and clinical product development through research and development efforts, and does not have sufficient cash on hand to sustain operations, which raises 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 a 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 a separate opinion 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") cell inventory has a long product life cycle, does not have a shelf life when frozen and future demand is uncertain. As such, management estimates its reserve for allowance for excess and obsolete LCT cell inventory using historical sales data and inventory turnover rates.

We identified auditing the Company's estimate for excess and obsolete LCT cell inventory as a critical audit matter. Auditing inventory turnover rates involves especially challenging auditor judgment due to the nature and extent of audit effort required to address the matter.

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

- Assessing the reasonableness of inventory turnover rates by agreeing certain sales and inventory movement data to relevant source documents.
- Testing the mathematical accuracy of the excess and obsolete LCT cell inventory reserve calculation.

/s/ BDO USA, P.C.

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

San Diego, California

March 28, 2025

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

	2024	December 31,	2023
Assets			
Current assets:			
Cash	\$ 1,230	\$ 1,588	
Accounts receivable, net	1,058	574	
Inventories	1,149	1,263	
Prepaid expenses and other current assets	123	96	
Total current assets	3,560	3,521	
Non-current inventories	252	266	
Property and equipment, net	257	215	
Intangible assets, net	721	800	
Right-of-use assets	352	557	
Deposits and other assets	31	31	
Total assets	<u>\$ 5,173</u>	<u>\$ 5,390</u>	
Liabilities, Redeemable Convertible Preferred Stock and Stockholders' Deficit			
Current liabilities:			
Accounts payable	\$ 186	\$ 364	
Accrued liabilities	527	485	
Operating lease liabilities, current	330	276	
Advances	250	250	
Related party note payable	3,395	3,457	
Total current liabilities	4,688	4,832	
Operating lease liabilities, net of current portion	115	445	
Total liabilities	4,803	5,277	
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, 2024 and 2023	4,300	4,300	
Stockholders' Deficit:			
Non-redeemable convertible preferred stock, \$0.001 par value; 10,004,310 and 10,004,310 shares authorized; 5,254,310 and 5,254,310 shares issued and outstanding; liquidation preference of \$9,811 and \$9,796 at December 31, 2024 and 2023, respectively	5	5	
Common stock, \$0.001 par value; 120,000,000 shares authorized; 8,004,389 shares issued and outstanding at December 31, 2024 and 2023	8	8	
Additional paid-in capital	106,742	106,276	
Accumulated deficit	(110,685)	(110,476)	
Total stockholders' deficit	(3,930)	(4,187)	
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	<u>\$ 5,173</u>	<u>\$ 5,390</u>	

See accompanying notes to consolidated financial statements.

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

	Year Ended December 31,	
	2024	2023
Product sales	\$ 9,085	\$ 7,789
Operating expenses:		
Cost of sales	3,764	3,181
General and administrative	3,516	3,514
Selling and marketing	1,216	1,246
Research and development	657	511
Total operating expenses	9,153	8,452
Loss from operations	(68)	(663)
Other income (expense):		
Employee retention credit	—	663
Interest expense	(145)	(139)
Other income, net	4	8
Total other (expense) income, net	(141)	532
Net loss	(209)	(131)
Net loss per common share, basic and diluted	\$ (0.03)	\$ (0.02)
Weighted-average common shares used to compute net loss per share, basic and diluted	8,004,389	8,004,389

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		Non-redeemable Convertible		Common Stock		Additional	Accumulat ed Deficit	Total Stockhold ers' Deficit
	Preferred Stock Shares	Amount	Preferred Stock Shares	Amount	Shares	Amount	Paid-in Capital		
Balance at December 31, 2022	—	\$ 4,300	5,254	\$ 5	8,004	\$ 8	\$ 105,812	\$ (110,345)	\$ (4,520)
Stock-based compensation	—	—	—	—	—	—	464	—	464
Net loss	—	—	—	—	—	—	—	(131)	(131)
Balance at December 31, 2023	—	4,300	5,254	5	8,004	8	106,276	(110,476)	(4,187)
Stock-based compensation	—	—	—	—	—	—	466	—	466
Net loss	—	—	—	—	—	—	—	(209)	(209)
Balance at December 31, 2024	—	<u>\$ 4,300</u>	<u>5,254</u>	<u>\$ 5</u>	<u>8,004</u>	<u>\$ 8</u>	<u>\$ 106,742</u>	<u>\$ (110,685)</u>	<u>\$ (3,930)</u>

See accompanying notes to consolidated financial statements.

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

	Year Ended December 31,	
	2024	2023
Cash flows from operating activities		
Net loss	\$ (209)	\$ (131)
Adjustments to reconcile net loss to net cash provided by operating activities:		
Stock-based compensation	466	464
Depreciation and amortization	206	194
Non-cash operating lease expense	205	170
Interest expense on related party note payable	138	132
Change in inventory reserve	14	103
Impairment of intangible assets	2	—
Changes in operating assets and liabilities:		
Accounts receivable	(484)	173
Inventories	114	38
Prepaid expenses and other current assets	(27)	(6)
Deposits and other assets	—	2
Accounts payable	(178)	42
Accrued liabilities	42	(23)
Operating lease liabilities	(276)	(229)
Net cash provided by operating activities	13	929
Cash flows from investing activities		
Purchases of property and equipment	(166)	(80)
Payments for patent licenses	(5)	(3)
Net cash used in investing activities	(171)	(83)
Cash flows from financing activities		
Principal repayment on note payable from related party	(200)	—
Net cash used in financing activities	(200)	—
Net (decrease) increase in cash	(358)	846
Cash, beginning of period	1,588	742
Cash, end of period	<u>\$ 1,230</u>	<u>\$ 1,588</u>
Supplemental disclosure of cash flow information:		
Cash paid for interest	<u>\$ 10</u>	<u>\$ 6</u>
Supplemental disclosure of non-cash investing activities:		
Patent license costs included in accounts payable and accrued expense	<u>\$ —</u>	<u>\$ 1</u>

See accompanying notes to consolidated financial statements.

International Stem Cell Corporation and Subsidiaries
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.

Going Concern

The Company had an accumulated deficit of approximately \$110.7 million at December 31, 2024 and has historically incurred net losses. The Company has 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 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 2025 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; and

•the number and type of product candidates that the Company decides to pursue.

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 wholly owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation. The functional currency of the Company and its wholly owned subsidiaries is the U.S. dollar. Monetary assets and liabilities that are not denominated in the functional currency are remeasured each reporting period into U.S. dollars at foreign currency exchange rates in effect at the respective balance sheet date. Non-monetary assets and liabilities and equity are remeasured at the historical exchange rates. Revenue and expenses are remeasured 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 accounting principles generally accepted in the United States of America ("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) and allowance for excess and obsolete inventories. By their nature, estimates are subject to an inherent degree of uncertainty and actual results could differ from these estimates.

Segments

The Company's chief operating decision maker ("CODM") is the Chief Executive Officer (Principal Executive Officer). The CODM 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: therapeutic market ("ISCO"); biomedical market ("LTC"); and anti-aging market ("LSC"). The accounting policies of the segments are the same as those described throughout [Note 1 – Description of Business and Summary of Significant Accounting Policies](#). All intercompany balances and transactions between reporting segments have been eliminated in consolidation.

Inventories

Inventories are accounted for using the average cost and first-in, first-out ("FIFO") methods for LCT cell culture media and reagents, specific identification method for other LCT products, and average cost and specific identification methods for LSC products. Inventories 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 inventories have a long product life cycle, do 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 of inventories. If the Company is able to sell such inventories, any related reserves would be reduced in the period of sale. The value of inventories that are not expected to be sold within one year of the current reporting period is classified as non-current inventories on the accompanying consolidated balance sheets.

Accounts Receivable

Trade accounts receivable is 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 measures expected credit losses for financial instruments at each reporting date based on historical experience, current conditions and reasonable forecasts. The allowance for credit losses represents the Company's estimate of expected credit losses relating to these factors. Amounts are written off against the allowances for credit losses when the Company determines that a customer account is uncollectible. At both December 31, 2024 and 2023, the Company's allowance for credit losses was immaterial.

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. For the years ended December 31, 2024 and 2023, 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 recognized as general and administrative expenses 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. The Company has elected to not recognize right-of-use assets and lease liabilities for leases with an initial term of 12 months or less. The Company recognizes lease expense on a straight-line basis over the lease term beginning on the commencement date.

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, which is measured as the excess of fair value over the asset or asset group's carrying value, 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 market segment (LCT) and anti-aging market segment (LSC). 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 skin care products directly to customers through online orders via the e-commerce sales channel.

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

LCT:

	Year Ended December 31, 2024			
	Domestic	International	Total Revenues	% of Total Revenues
Biomedical products				
Media	\$ 5,257	\$ 696	\$ 5,953	72 %
Cells	1,703	634	2,337	28 %
Total	<u>\$ 6,960</u>	<u>\$ 1,330</u>	<u>\$ 8,290</u>	<u>100 %</u>

	Year Ended December 31, 2023			
	Domestic	International	Total Revenues	% of Total Revenues
Biomedical products				
Media	\$ 4,059	\$ 683	\$ 4,742	69 %
Cells	1,602	522	2,124	31 %
Total	<u>\$ 5,661</u>	<u>\$ 1,205</u>	<u>\$ 6,866</u>	<u>100 %</u>

LSC:

	Year Ended December 31,			
	2024		2023	
Skin care products	\$	795	\$	923

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 performance obligation(s) within 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 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 shipment of the product).

The standard payment terms for the Company's customers are generally 30 days after the Company satisfies the performance obligation(s). For LSC products, ecommerce sales are generally paid at the time of purchase.

The Company accounts for shipping and handling costs, recognized as cost of sales, 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 to the customer. From time to time, the Company offers sales promotions on its LSC 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.

Practical Expedients

The Company has elected the practical expedient to not determine whether contracts 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 be one year or less. These costs are recorded as selling and marketing expenses within the accompanying consolidated statement of operations. 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. At December 31, 2024 and 2023, 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, shipping costs, 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

Advertising costs are expensed as incurred and included as a component of selling and marketing expenses in the accompanying consolidated statements of operations. For the years ended December 31, 2024 and 2023, advertising costs were approximately \$179 thousand and \$204 thousand, 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 without alternative future uses, offset by the research and development tax credits provided by the Australian Taxation Office for qualified expenditures.

Australian Research and Development Tax Credit

The Company's wholly owned subsidiary, Cyto Therapeutics, conducts various research and development activities on the Company's product candidates in Australia. Under Australian tax law, 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. The Australian research and development tax incentive program is a self-assessment process, and the Australian Government has the right to review the Company's qualifying programs and related expenditures for a period of four years. If such a review were to occur and, as a result of the review and failure of a related appeal, the qualified program and related expenditures were disqualified, the respective research and development refunds could be recalled with penalties and interest.

The refundable tax credit does not depend on the Company's generation of future taxable income or ongoing tax status or position. Accordingly, the credit is not considered an element of income tax accounting under Financial Accounting Standards Board (the "FASB") Accounting Standards Codification ("ASC") 740 – Income Taxes. The Company uses the grant accounting model by analogy to International Accounting Standards ("IAS") 20 to account for the refundable tax credit from the Australian government. The Company recognizes the research and development tax credit as a reduction to research and development expense when there is reasonable assurance that the tax credit will be received, the relevant expenses have been incurred, and the amount can be reliably measured. During the year ended December 31, 2024 and 2023, the Company recognized a reduction in qualified research and development expenses of \$94 thousand and \$99 thousand, respectively, in the accompanying consolidated statement of operations.

Employee Retention Credit

Similar to the Australian research and development tax credit, the Company uses the grant accounting model by analogy to IAS 20 to account for the refundable Employee Retention Tax Credit ("ERC") from the U.S. government. The Company recognized the refundable tax credit as other income when there was reasonable assurance that the tax credit will be received, the relevant expenses have been incurred, and the amount can be reliably measured. Laws and regulations concerning government programs, including the ERC, are complex and subject to varying interpretations. Claims made under these programs may also be subject to retroactive audit and review. While the Company does not believe there is a basis for estimation of an audit or recapture risk at this time, there can be no assurance that regulatory authorities will not challenge the Company's claim to the ERC in a future period. Refer to [Note 8 – Employee Retention Credit](#) within the consolidated financial statements for further discussion.

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. Stock-based compensation 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 Company uses the simplified method to estimate the term of options granted. 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 Measurements

The carrying amounts of the Company’s accounts receivable, accounts payable, and accrued liabilities are considered to be representative of their respective fair values because of the short-term nature of those instruments. The carrying value of the Company’s related party note payable does not approximate fair value. Refer to [Note 10 – Related Party Transactions](#) within the consolidated financial statements for further discussion.

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 income attributable to common stockholders by the weighted-average number of common stock equivalents outstanding for the period determined using the treasury and two-class or "if-converted" methods. The two-class method is not applicable during periods with a net loss, as the holders of the convertible preferred stock do not have an obligation to fund losses. Potentially dilutive common stock equivalents are comprised of stock options and convertible preferred stock. For the years ended December 31, 2024 and 2023, 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, 2024 and 2023, the following common stock options and convertible preferred stock were not included in the diluted net loss per share calculation because the effect would be anti-dilutive.

	Year Ended December 31,	
	2024	2023
Employee stock options	12,211,332	8,590,455
Redeemable convertible preferred stock	2,457,143	2,457,143
Non-redeemable convertible preferred stock	5,061,687	5,061,687
Total	<u>19,730,162</u>	<u>16,109,285</u>

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, 2024 and 2023.

Customer Concentrations

For the years ended December 31, 2024 and 2023, one customer accounted for approximately 53% and 46%, respectively, of consolidated product sales, and approximately 58% and 52%, respectively, of biomedical product sales. At December 31, 2024 and 2023, the same customer accounted for 67% and 47%, respectively, of accounts receivable, net.

No other single customer accounted for more than 10% of product sales, net for the years ended December 31, 2024 and 2023 in either segment. No other single customer accounted for more than 10% of accounts receivable, net at December 31, 2024. At December 31, 2023, three customers of LCT individually accounted for more than 10% of accounts receivable, net and in the aggregate, accounted for 33% of accounts receivable, net.

Cash Concentrations

The Company maintains cash balances at various financial institutions. Accounts at these institutions are secured up to \$250 thousand by the Federal Deposit Insurance Corporation ("FDIC"). At times, cash balances may exceed this limit.

As of December 31, 2024 and 2023, amounts on deposit in excess of FDIC insured limits approximated \$327 thousand and \$543 thousand, respectively. The Company has not experienced any losses in such accounts and believes it is not exposed to any significant credit risk on cash.

Recently Issued Accounting Pronouncements

In December 2023, the Financial Accounting Standards Board issued Accounting Standards Update ("ASU") No. 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosure* ("ASU 2023-09"). ASU 2023-09 intends to provide improved transparency about income tax information through improvements to income tax disclosures. Among other things, the amendments in ASU 2023-09 require enhanced disclosures regarding federal, state, and foreign income taxes primarily related to the income tax rate reconciliation and income taxes paid. Further, the amendments eliminate certain disclosure requirements related to uncertain tax positions and unrecognized deferred tax liabilities. The new standard will be effective for the Company for the fiscal year ending December 31, 2025. The Company is currently evaluating the potential impact that this standard may have on its consolidated financial statements and related disclosures.

In November 2024, the FASB issued ASU No. 2024-03, *Income Statement—Reporting Comprehensive Income—Expense Disaggregation Disclosures (Subtopic 220-40)* ("ASU 2024-03"). ASU 2024-03 requires disclosure of disaggregated information about any relevant expense captions presented on the face of the consolidated statement of operations, including the following required natural expense categories: (1) purchases of inventory, (2) employee compensation, (3) depreciation, (4) intangible asset amortization, and (5) depreciation, depletion, and amortization ("DD&A") recognized as part of oil- and gas-producing activities or other depletion expenses, as well as certain other expenses, when applicable. The new standard will be effective for the Company for the fiscal year ending December 31, 2026, and interim periods within fiscal years beginning after December 15, 2027. Early adoption is permitted. The Company is currently evaluating the potential impact that this standard may have on its consolidated financial statements and related disclosures.

Recently Adopted Accounting Pronouncements

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): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity* ("ASU 2020-06"). ASU 2020-06 intends to simplify 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. Among other things, the amendment allows certain convertible debt instruments to be accounted for as a single liability measured at its amortized cost, as long as no other features require bifurcation and recognition as derivatives. Further, the amendments require use of the if-converted method in the diluted earnings per share calculation for convertible instruments. The Company adopted ASU 2020-06 on January 1, 2024. The adoption of this standard did not have a material impact on the Company's consolidated financial statements.

In November 2023, the FASB issued ASU No. 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures* ("ASU 2023-07"). ASU 2023-07 intends to improve reportable segment disclosure requirements, primarily through enhanced disclosures about significant segment expenses. Among other things, the amendments in ASU 2023-07 require additional information regarding significant segment expenses provided to the chief operating decision maker ("CODM"), qualitative and quantitative disclosures regarding other segment items, any additional segment profit or loss measures contemplated by the CODM when assessing segment performance, how the CODM allocates resources among segments, and the title and position of the CODM. Further, the amendments require interim segment reporting disclosures that were previously only required to be disclosed annually. ASU 2023-07 is effective for the Company for the fiscal year ending December 31, 2024 and for interim periods beginning January 1, 2025. The adoption of this standard for the year ended December 31, 2024 did not have a material impact on the Company's consolidated financial results, but resulted in enhanced disclosures as included in [Note 12 – Segments and Geographic Information](#).

2. Inventories

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

	December 31,	
	2024	2023
Raw materials	\$ 532	\$ 526
Work in process	538	597
Finished goods	1,067	1,145
	2,137	2,268
Less: allowance for inventory excess and obsolescence	(736)	(739)
Total inventories	<u>\$ 1,401</u>	<u>\$ 1,529</u>
Inventories	\$ 1,149	\$ 1,263
Non-current inventories	252	266
Total inventories	<u>\$ 1,401</u>	<u>\$ 1,529</u>

At December 31, 2024 and 2023, the allowance for inventory excess and obsolescence consists of the following activity (in thousands):

	December 31,	
	2024	2023
Balance, beginning of year	\$ 739	\$ 637
Provision for inventory reserve	289	277
Write-offs	(292)	(175)
Balance, end of year	<u>\$ 736</u>	<u>\$ 739</u>

Write-offs of inventories include scrapped inventories and reserved inventories sold.

3. Property and Equipment

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

	December 31,	
	2024	2023
Machinery and equipment	\$ 1,662	\$ 1,602
Computer equipment and software	221	221
Office equipment	64	89
Leasehold improvements	625	617
Construction in progress	12	12
	2,584	2,541
Less: accumulated depreciation and amortization	(2,327)	(2,326)
Property and equipment, net	<u>\$ 257</u>	<u>\$ 215</u>

Depreciation and amortization expense for the years ended December 31, 2024 and 2023 was \$124 thousand and \$112 thousand. During the year ended December 31, 2024 and 2023, the Company disposed of approximately \$123 thousand and \$5 thousand, respectively, in property and equipment that had been depreciated and amortized in full and had no impact to the accompanying consolidated statements of operations.

4. Intangible Assets

Intangible assets consist of the following (in thousands):

	December 31,	
	2024	2023
Patents	\$ 1,293	\$ 1,290
Less: accumulated amortization	(647)	(565)
	646	725
Indefinite life logos and trademarks	75	75
Intangible assets, net	<u>\$ 721</u>	<u>\$ 800</u>

Amortization expense for the years ended December 31, 2024 and 2023 was \$82 thousand and \$82 thousand, respectively. Impairment charges for the years ended December 31, 2024 and 2023 was \$2 thousand and zero, respectively. The impairment charges, measured on a cost basis, relate to the 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 at December 31, 2024 and 2023 was \$64 thousand and \$61 thousand, respectively. At December 31, 2024, future amortization expense related to intangible assets subject to amortization is expected to be as follows (in thousands):

Year ending December 31,	
2025	\$ 80
2026	76
2027	73
2028	73
2029	68
Thereafter	276
Total	<u>\$ 646</u>

5. Convertible Preferred Stock

At December 31, 2024 and 2023, the Company was authorized to issue 20,000,000 shares of preferred stock, \$0.001 par value per share, 50 shares of Series D redeemable convertible preferred stock and 10,004,310 of Series B, Series G and Series I-2 non-redeemable convertible preferred stock. The Company's Series B, Series G and Series I-2 non-redeemable convertible preferred stock has been classified as equity on the accompanying consolidated balance sheets.

The authorized, issued and outstanding shares of non-redeemable convertible preferred stock at December 31, 2024 consisted of the following:

	Shares Authorized	Shares Issued and Outstanding	Liquidation Preference (in thousands)	Carrying Value
Series B	5,000,000	250,000	\$ 501	\$ —
Series G	5,000,000	5,000,000	5,000	5
Series I-2	4,310	4,310	4,310	—
Total	<u>10,004,310</u>	<u>5,254,310</u>	<u>\$ 9,811</u>	<u>\$ 5</u>

The authorized, issued and outstanding shares of non-redeemable convertible preferred stock at December 31, 2023 consisted of the following:

	Shares Authorized	Shares Issued and Outstanding	Liquidation Preference (in thousands)	Carrying Value
Series B	5,000,000	250,000	\$ 486	\$ —
Series G	5,000,000	5,000,000	5,000	5
Series I-2	4,310	4,310	4,310	—
Total	<u>10,004,310</u>	<u>5,254,310</u>	<u>\$ 9,796</u>	<u>\$ 5</u>

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. The Series D and G convertible preferred stock previously had rights to cumulative dividends in liquidation whether declared or not declared. Since the holders waived the rights to such dividends in 2012, this does not have an ongoing impact. No dividends have been declared for the year ended December 31, 2024.

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 shares of convertible preferred stock are convertible into shares of common stock at any time, at the option of the holder. 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. 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 conversion ratio of shares of common stock into which each share of convertible preferred stock can be converted at December 31, 2024:

	Initial Conversion Price		Current Conversion Price		Conversion Ratio to Common Stock
Series B	\$	75.00	\$	0.12	8.33
Series D	\$	37.50	\$	1.75	57,142.86
Series G	\$	60.00	\$	9.69	0.10
Series I-2	\$	1.75	\$	1.75	571.43

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.

6. Stockholders' Deficit

Common Stock

At December 31, 2024, the Company was authorized to issue 120,000,000 shares of common stock, \$0.001 par value per share.

Common Stock Reserved for Future Issuance

At December 31, 2024, the Company had shares of common stock reserved for future issuance as follows:

Options outstanding	12,522,943
Common stock available for issuance under the 2010 Plan	17,310,115
Redeemable convertible preferred stock	2,457,143
Non-redeemable convertible preferred stock	5,061,687
Total	37,351,888

7. 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 (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 until March 2030. No other material provisions were amended.

In September 2023, the Company's Board of Directors voted to amend the 2010 Plan ("2010 Plan Amendment") to 1) increase the number of shares that may be issued under the 2010 Plan from 9,700,000 shares to an aggregate of 30,000,000 shares of common stock and 2) increase the number of awards an employee may receive in a calendar year from 800,000 shares to 10,000,000 shares. The majority shareholders approved the 2010 Plan Amendment on September 21, 2023 and the Company filed the Notice of Internet Availability of Information Statement (the "Notice") on September 27, 2023, noting the 2010 Plan Amendment would become effective no earlier than 40 calendar days after the Notice was first made available to shareholders. Accordingly, on November 6, 2023, the 2010 Plan Amendment became effective.

For the year ended December 31, 2024 and 2023, there were no restricted stock units granted. At December 31, 2024, there were no restricted stock units outstanding.

Stock Options

Stock options are issued to employees, directors and consultants under the 2006 Plan and the 2010 Plan and have a maximum life of 10 years. For the years ended December 31, 2024 and 2023, no options were exercised. The Company's stock option activity for the year ended December 31, 2024 is as follows:

	Number of Outstanding Options	Weighted- Average Exercise Price	Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2023	11,807,494	\$ 0.64		
Granted	782,222	\$ 0.12		
Forfeited or cancelled	(50,000)	\$ 1.53		
Expired	(16,773)	\$ 22.61		
Outstanding at December 31, 2024	12,522,943	\$ 0.58	6.94	\$ —
Vested and expected to vest at December 31, 2024	12,302,639	\$ 0.58	6.91	\$ —
Exercisable at December 31, 2024	9,532,389	\$ 0.71	6.38	\$ —

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, 2024 and 2023 were as follows:

	Year Ended December 31,	
	2024	2023
Risk-free interest rate	4.36%	4.28%
Expected stock price volatility	108.75%	91.50%
Expected dividend yield	0%	0%
Expected life of options (in years)	5.33	5.69
Weighted-average grant date fair value	\$0.06	\$0.10

Total stock-based compensation expense for the years ended December 31, 2024 and 2023 was comprised of the following (in thousands):

	Year Ended December 31,	
	2024	2023
Cost of sales	\$ 1	\$ 3
General and administrative	350	359
Selling and marketing	3	7
Research and development	112	95
Total	<u>\$ 466</u>	<u>\$ 464</u>

Unrecognized compensation expense related to stock options at December 31, 2024 was \$287 thousand, which is expected to be recognized over a weighted-average period of approximately 1.29 years.

8. Employee Retention Credit

Other income is primarily attributable to the one-time receipt of the Employee Retention Tax Credit from the Internal Revenue Service (the "IRS"). As a response to the COVID-19 outbreak, the U.S. government enacted the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act"), which contained a number of programs to assist workers, families and businesses. Part of the CARES Act provides an Employee Retention Credit ("ERC"), which is a refundable tax credit against certain employment taxes equal to 50% of qualified wages paid, up to \$10,000 per employee annually, from March 12, 2020 through January 1, 2021. Additional relief provisions were passed by the United States government, which extended and expanded the qualified wage caps on these credits to 70% of qualified wages paid through June 30, 2021 and 100% of qualified wages paid through December 31, 2021, up to \$10,000 per employee per quarter.

In January 2023, the Company filed Form 941-X for the three months ended March 31, June 30 and September 30, 2021 to claim a refund for the ERC. The Company elected to account for the ERC under IAS 20 when there was reasonable assurance of receipt, which was determined to be when the notification of acceptance of Form 941-X was received by the IRS. In June 2023, the Company received confirmation from the IRS that changes to the Company's Q1, Q2 and Q3 941 forms amounting to \$224 thousand in the first quarter of 2021, \$238 thousand in the second quarter of 2021, and \$201 thousand in the third quarter of 2021 had been accepted. The Company received payment from the IRS related to the ERC during the second quarter of 2023 and recorded other income of \$663 thousand in the accompanying consolidated statement of operations for the year ended December 31, 2023.

9. Income Taxes

The components of worldwide pre-tax book loss are as follows:

	December 31,	
	2024	2023
Domestic pre-tax book loss	\$ (154)	\$ (76)
Foreign pre-tax book loss	(55)	(55)
Consolidated pre-tax book loss	<u>\$ (209)</u>	<u>\$ (131)</u>

The Company accounts for income taxes in accordance with applicable authoritative guidance, which requires the Company to provide a net deferred tax asset/liability equal to the expected future tax benefit/expense of temporary reporting differences between book and tax accounting methods and any available operating loss or tax credit carryforwards. The Company has available at December 31, 2024, federal net operating loss carryforwards of approximately \$19.7 million, which may be applied against future taxable income. At December 31, 2023, the Company had federal net operating loss carryforwards of approximately \$20.3 million. The decrease in federal operating loss carryforwards for the year ended December 31, 2024 is approximately \$610 thousand, which is the estimated amount of net operating losses that will be used to offset taxable income for 2024. The Australian net operating loss carryforwards as of December 31, 2024 are approximately \$549 thousand, which may be carried forward indefinitely. Any federal net operating losses generated prior to 2018 will start to expire beginning in 2026, and net operating losses generated starting in 2018 will carry forward indefinitely until they are used. The state net operating losses will start to expire beginning in 2036.

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, R&D 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, 2024 and 2023 is as follows:

	Year Ended December 31,	
	2024	2023
Statutory federal income tax rate	21.0%	21.0%
State income taxes, net of federal taxes	(10.6%)	(68.0%)
Foreign rate differentials	(70.8%)	41.3%
Permanent items	(2.9%)	(9.2%)
Change in valuation allowance	145.9%	11,815.8%
Research and development tax credits limitation	0.0%	(1,241.0%)
Employee retention credit income	0.0%	104.5%
Stock-based compensation	(85.7%)	(226.9%)
Adjustments to NOL	0.0%	(10,830.5%)
ASC 740-10 adjustments	0.0%	402.0%
Other	3.1%	(9.0%)
Effective income tax rate	0.0%	0.0%

The Company files income tax returns in the U.S. federal jurisdiction, and various states. With few exceptions, the Company is no longer subject to U.S. federal, state and local income tax examinations by tax authorities for years before 2018. The Company follows the provisions of FASB ASC 740-10 – *Accounting for Uncertainty in Income Taxes*. ASC 740-10 prescribes a comprehensive model for the recognition, measurement, presentation and disclosure in consolidated financial statements of uncertain tax positions that have been taken or expected to be taken on a tax return.

At December 31, 2024, 2023, and 2022, the Company's reserve for unrecognized tax benefits is approximately \$478 thousand, \$478 thousand, and \$953 thousand, respectively. Due to the full valuation allowance at December 31, 2024, current adjustments to the unrecognized tax benefits will have no impact on the Company's effective tax rate. The Company does not anticipate any significant change in its unrecognized tax benefits within 12 months of this reporting date. The Company includes penalties and interest expense related to income taxes as a component of other expense and interest expense, respectively, as necessary.

A reconciliation of the reserve for unrecognized tax benefits is as follows (in thousands):

Balance at December 31, 2022	\$	953
Increase (decrease) related to prior year tax positions		(475)
Increase (decrease) related to current year tax positions		—
Increase (decrease) related to settlements with taxing authorities		—
Increase (decrease) related to lapse in statute of limitations		—
Balance at December 31, 2023		478
Increase (decrease) related to prior year tax positions		—
Increase (decrease) related to current year tax positions		—
Increase (decrease) related to settlements with taxing authorities		—
Increase (decrease) related to lapse in statute of limitations		—
Balance at December 31, 2024	\$	478

The Company is subject to IRC Code Section 382 and 383, which limits the amount of the net operating loss and tax credit carryovers that can be used in future years. The Company has 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. Based on the completed study, it was determined that the Company had significant ownership changes that occurred in January 2009 and November 2015. As a result of the ownership changes, under IRC Code Sections 382 and 383, the net operating losses and research and development credits that were generated in the periods prior to November 2015 have been significantly limited and a substantial amount will expire unused. The Company estimates that if another future change in ownership 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 as well. 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.

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

	December 31,	
	2024	2023
Deferred tax assets:		
Net operating loss carryforwards	\$ 5,208	\$ 5,476
Research and development tax credits	922	922
Stock-based compensation	903	995
IRC Section 174 costs	233	172
Intangibles	158	166
Lease liabilities	99	161
Accrued expenses	143	123
Deferred tax assets	7,666	8,015
Less: valuation allowance	(7,557)	(7,858)
Net deferred tax assets	109	157
Deferred tax liabilities:		
Right-of-use assets	(78)	(125)
Depreciation	(31)	(32)
Total deferred tax liabilities	(109)	(157)
Net deferred tax assets	\$ —	\$ —

10. Related Party Transactions

Related party lease agreements

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. S Real Estate Holdings LLC is owned by Dr. Russell Kern, the Company's Executive Vice President, Chief Scientific Officer. The Lease was personally guaranteed by the Dr. Russell Kern, the Company's Executive Vice President, 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.

Refer to [Note 11 – Commitments & Contingencies](#) within the consolidated financial statements for further discussion.

Related party note payable

Between March 2018 and March 2021, to obtain funding for working capital purposes, the Company borrowed a total of \$2.9 million from Dr. Semechkin, Co-Chairman and CEO, and issued an unsecured, non-convertible promissory note in the principal amount of \$2.9 million (the "Note") to Dr. Semechkin (the "Noteholder"). 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 were due and payable on March 15, 2023 and could be pre-paid without penalty at any time. There were no debt issuance fees associated with this issuance.

In March 2023, the Noteholder surrendered the Note, and the Company issued a new promissory note ("March 2023 Note"), which featured all the same terms as the previously outstanding note, with the exception of an extension of the maturity date from March 15, 2023 to September 15, 2023. The March 2023 Note has a principal balance of \$2.9 million, an interest rate of 4.5%, and features optional prepayment terms. There were no debt issuance fees associated with this issuance.

In September 2023, the Noteholder surrendered the March 2023 Note, and the Company issued a new promissory note ("September 2023 Note"), which featured all the same terms as the previously outstanding note, with the exception of an extension of the maturity date from September 15, 2023 to September 15, 2024. The September 2023 Note has a principal balance of \$2.9 million, an interest rate of 4.5%, and features optional prepayment terms. There were no debt issuance fees associated with this issuance.

All amendments during the year ended December 31, 2023 qualified as troubled debt restructurings, which did not result in a gain as the carrying amount of the debt was less than the total future cash payments of the restructured debt.

On September 15, 2024, the Company surrendered its September 2023 Note, which included repaying \$0.2 million in outstanding principal, reducing the principal balance to \$2.7 million, increasing the interest rate from 4.5% to 5.5%, and extending the maturity date from September 15, 2024 to September 15, 2025 ("September 2024 Note"). All other terms of the September 2024 Note are the same as the previously outstanding note and there were no debt issuance fees associated with this issuance. Pursuant to ASC 470-60, the amendment did not qualify as a troubled debt restructuring as the creditor did not grant a concession. As the terms of the September 2024 Note were not substantially different than the terms of the September 2023 Note, the amendment was accounted for as a debt modification. The repayment of principal was accounted for as a partial extinguishment of debt, which did not result in an extinguishment gain or loss.

11. Commitments and Contingencies

Leases

At December 31, 2024, 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 termination date of December 2026, jointly leased with a related party (refer to [Note 10 – Related Party Transactions](#) within the consolidated financial statements for further discussion). This lease contains no renewal or term extension options;
- San Diego, California – supplemental office space adjacent to the Company's corporate headquarters with a termination date of December 2026. This lease contains no renewal or term extension options; and
- Frederick, Maryland – mixed laboratory and administrative space with a term date of November 2025. The lease contains one renewal option for an additional three-year term through November 2028. The renewal option is not included in the lease terms as it is not reasonably certain that the Company will exercise its renewal option.

In October 2021, the Company entered into an operating lease for its new corporate headquarters. The lease commenced in November 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, with base rent for months two through five of the lease term 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 in December 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 approximately \$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. At December 31, 2024, total right-of-use assets and operating lease liabilities were approximately \$352 thousand and \$445 thousand, respectively. At December 31, 2024, 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, except years and percentages):

	Year Ended December 31,			
	2024		2023	
Operating lease costs	\$	278	\$	278
Short-term lease costs		3		5
Variable lease costs		161		159
Total lease costs	\$	442	\$	442
Cash paid for amounts included in measurement of lease liabilities	\$	349	\$	338
Weighted-average remaining lease term (years)		1.50		2.44
Weighted-average discount rate		12.57%		13.20%

Maturities of lease liabilities at December 31, 2024 were as follows (in thousands):

Year ending December 31,		
2025	\$	360
2026		119
Total minimum lease payments		479
Less: imputed interest		(34)
Total future minimum lease payments		445
Less: operating lease liabilities, current		(330)
Operating lease liabilities, net of current portion	\$	<u>115</u>

Licensed Patents

The Company had 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 patents, along with the license agreement, expired at the end of July 2022. These patents were fully impaired in prior years and, therefore, the expiration did not result in any impairment for the year ended December 31, 2022. The Company does not anticipate any short-term liquidity effects from this obligation as they will no longer be liable for the annual licensing fee.

12. Segments and Geographic Information

The CODM 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: therapeutic market ("ISCO"); biomedical market ("LTC"); and anti-aging market ("LSC"). The Company identifies their reporting segments based on market offering as each segment has unique customer needs and regulatory requirements.

The CODM uses operating income (loss) to allocate resources (including employees, financial, and capital resources) for each segment predominantly in the annual forecasting process. Corporate overhead expenses have been allocated to the segments either through specific identification or based on a reasonable methodology. The CODM compares year-over-year actual results on a quarterly basis to assess performance and make decisions about allocating resources to the segments. The Company's measure of segment profit or loss is the operating income (loss) metric. This aligns the segment reporting with the Company's internal management reporting and performance evaluation practices.

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

	Year Ended December 31, 2024				
	ISCO	LCT	LSC	Total	
Product sales	\$ —	\$ 8,290	\$ 795	\$ 9,085	
Operating expenses:					
Cost of sales	—	3,450	314	3,764	
General and administrative	2,120	855	541	3,516	
Selling and marketing	—	712	504	1,216	
Research and development	336	283	38	657	
Total operating expenses	2,456	5,300	1,397	9,153	
(Loss) income from operations	\$ (2,456)	\$ 2,990	\$ (602)	\$ (68)	
Total other expense, net				(141)	
Net loss				<u>\$ (209)</u>	
Additional Segment Information					
Interest expense	\$ (145)	\$ —	\$ —	\$ (145)	
Depreciation and amortization	\$ 78	\$ 125	\$ 3	\$ 206	
Share-based compensation expense	\$ 295	\$ 99	\$ 72	\$ 466	

	ISCO	Year Ended December 31, 2023			Total
		LCT	LSC		
Product sales	\$	—	\$ 6,866	\$ 923	\$ 7,789
Operating expenses:					
Cost of sales		—	2,836	345	3,181
General and administrative		2,309	737	468	3,514
Selling and marketing		—	651	595	1,246
Research and development		209	267	35	511
Total operating expenses		2,518	4,491	1,443	8,452
(Loss) income from operations	\$	(2,518)	\$ 2,375	\$ (520)	\$ (663)
Total other income, net					532
Net loss				\$	(131)
Additional Segment Information					
Interest expense	\$	(139)	\$ —	\$ —	\$ (139)
Depreciation and amortization	\$	79	\$ 112	\$ 3	\$ 194
Share-based compensation expense	\$	308	\$ 97	\$ 59	\$ 464

Geographic Information

The Company's wholly owned subsidiaries are located in Maryland, California and Victoria, Australia, and have customer and vendor relationships worldwide. The Company's long-lived assets including property, plant, and equipment, net, right-of-use assets, and intangible assets, net are domiciled in the United States. Significant revenues in the following regions are those that are attributable to the individual country within the region to which the product was shipped were as follows (in thousands):

	Year Ended December 31,	
	2024	2023
United States	\$ 7,727	\$ 6,548
Asia	890	726
Europe	407	395
All other regions	61	120
Total	\$ 9,085	\$ 7,789

13. Subsequent Events

In February 2025, the Company and S Real Estate Holdings, LLC, a related party, amended its co-tenant agreement to re-allocate portions of the base rent and variable charges. Retroactively, as of January 2025, the Company will now be liable for 75% of all costs incurred in connection with the Lease. As a result of the amended co-tenant agreement, the Company will recognize a lease liability and right-of-use asset as of the modification date in Fiscal Year 2025.

In March 2025, the Company and St. John Properties, Inc, amended its lease agreement to extend the lease expiration for one year from December 31, 2025 to December 31, 2026. As a result of the amended lease agreement, the Company will reassess the lease liability and associated right-of-use-asset in Fiscal Year 2025.



International Stem Cell Corporation Insider Trading Policy

Effective Tuesday, June 15, 2021

1. Introduction

The Board of Directors of International Stem Cell Corporation, (together with its subsidiaries, the “Company”) has established the rules set forth in this Insider Trading Policy (the “Policy”) in order to provide guidelines to all directors, officers, employees, and consultants of the Company with respect to trading in the Company’s securities.

The Company has designated Sophia Garnette, the Company’s In-House Counsel as its Compliance Officer (the “Compliance Officer”).

2. Persons Covered

For purposes of this Policy, “Covered Persons” include the Company’s Board of Directors, officers, employees, and consultants. Restrictions set forth in this policy also apply to:

(a) *Family Members* - Covered Persons’ spouses, domestic partners, parents, children, siblings, and anyone else sharing a home with a Covered Person

(b) *Associates* - Persons with whom a Covered Person has a history, pattern or practice of sharing confidences, such as close friends, financial and personal counselors, any trust of which a Covered Person or a family member is a beneficiary or trustee, or any partnership, limited liability company, corporation or other entity for which a Covered Person or a family member have sole or shared investment power.

3. Material Nonpublic Information

“Material Nonpublic Information” is information concerning a company that: (a) is not generally known to the public, and (b) if publicly known, would be likely to affect either the market price of the company’s securities or a person’s decision to buy, sell, or hold the company’s securities.

Because this standard may be difficult to apply in everyday situations and is fact intensive, the following are examples of the types of information that courts have found to be material in past cases, and which likely would constitute material inside information if not generally known to the public. This list is not all-inclusive and is only intended as a guide.

- information regarding sales, revenues or earnings (including projections);
- financial forecasts of any kind, including earnings estimates or changes in previously announced earnings estimates;

- significant business trends and metrics;
- significant proposed mergers, acquisitions, investments or divestitures;
- significant developments in products or services;
- gain or loss of substantial customers;
- execution or termination of significant contracts;
- financings or restructurings;
- significant unusual gains or losses;
- changes in business strategies;
- developments in significant litigation or government investigations;
- public or private debt or equity offerings;
- significant changes in senior management;

Public Availability of Information

Release of information outside the Company, whether through media or other sources, does not necessarily mean information has become “publicly available” and therefore safe to trade upon under the restrictions of this Policy. Information is considered to be available to the public only when it has been released officially to the marketplace through established means of communication for such information (e.g. press release or SEC filing) and market participants were given reasonable time to absorb and evaluate the information.

4. Rules Applicable to All Covered Persons

4.1. No Covered Person may buy or sell Company securities at any time that he, she or it possesses Material Nonpublic Information relating to the Company.

4.2. No Covered Person may buy or sell securities of any other company if at the time he, she or it possesses Material Nonpublic Information relating to that company, including any information he, she or it has obtained during the course of his, her or its employment or engagement with the Company.

4.3. No Covered Person shall directly or indirectly engage in “*tipping*” Material Nonpublic Information concerning the Company to anyone or communicate Material Nonpublic Information concerning the Company to anyone outside the Company or otherwise, unless:

- (a) such communication is appropriate under the circumstances
- (b) has been properly authorized by the Company, and
- (c) unless the person receiving the information has agreed, in writing if appropriate, to keep such information confidential.

4.4. No Covered Person shall permit any member of his or her family or other household member to engage in any of the activities described in this Policy and each such family member shall comply, if applicable, with the Special Rules set forth in this Policy.

4.5. Each Covered Person is responsible for ensuring that he or she, as well as any entity owned or controlled by them, is in compliance with this Policy before engaging in any transaction involving Company securities.

4.6. Covered Persons should allow at least two (2) full trading days after the date of the public disclosure to elapse before trading in order to allow for public dissemination and evaluation of material information after public disclosure through appropriate channels.

4.7. Each Covered Person must obtain pre-approval from the CFO/Compliance Officer before trading in Company securities, including exercise of Company stock options.

4.8. In addition to the trading restrictions described above, Covered Persons may not engage, directly or through affiliated individuals or entities, in any of the following activities with respect to Company securities:

- Short selling (i.e., selling Company securities not owned at the time of sale);
- Buying or selling put options, call options or other derivative securities relating to the Company on a securities exchange or in any other organized securities market;
- Purchasing financial instruments (including prepaid variable forward contracts, equity swaps, collars, and exchange funds), or otherwise engaging in transactions, that hedge or offset, or are designed to hedge or offset, any decrease in the market value of registrant equity securities;
- Purchasing Company securities on margin;
- Borrowing against Company securities in a margin account; or
- Pledging Company securities.

5. Additional Rules for Insiders

“Insiders” are those Covered Persons who are at an increased risk of possessing material non-public information and who must therefore exercise greater diligence to ensure compliance with insider trading prohibitions. Insiders include all members of the Company’s Board of Directors, all Company Officers (whether or not they are subject to Section 16 of the 1934), and certain senior employees (i) whose role makes it likely that they will have access to material non-public information and (ii) who have been designated by either the Chief Executive Officer or the Compliance Officer.

5.1. Insiders shall not purchase or sell any Company securities, except:

- (a) after first consulting with and receiving prior written permission from the Company’s Compliance Officer with respect to such transaction, and
- (b) only during the period commencing at the opening of the second full trading day after an earnings press release or SEC filing with respect to the preceding fiscal quarter and ending *five* (5) business days prior to the end of the current fiscal quarter (the “Window Period”).

For example, during the first calendar quarter, if the company files its Annual Report on 10-K or, if earlier, issues an earnings release for the completed fiscal year before March 21, then the Window Period would begin *two* (2) days after such disclosure and close on March 24. However, if such disclosure is on or after March 21, then the Window Period would not open until the second calendar quarter.

For the second, third and fourth calendar quarters, the Window Period would begin in May, August and November two days after the filing of the Quarterly Report on Form 10-Q or, if earlier, the issuance of an earnings release for the completed quarter, and would close on June 23, September 23 or December 22 (as applicable).

5.2.10b5-1 PLANS

Insiders may establish contracts, plans or instructions (referred to as “10b5-1 Arrangements”) that comply with the requirements of Rule 10b5-1(c) of the Securities Exchange Act of 1934, as amended. However, an Insider may not enter into and commence sales under a 10b5-1 Arrangement other than during any Window Period or while the Insider is aware of material, non-public information about the Company.

Further, an Insider must obtain the written approval of the Compliance Officer before entering into a 10b5-1 Arrangement, and the Company reserves the right to make public disclosure a condition to implementation of a 10b5-1 Arrangement. Additionally, an Insider may not modify or terminate a 10b5-1 Arrangement without prior written approval as set forth in the preceding sentence.

Any purchase or sale of Company securities by an Insider executed in accordance with the requirements of Rule 10b5-1(c) pursuant to a pre-approved 10b5-1 Arrangement will not be subject to (a) the requirement that such trade not be made while the Covered Person is aware of Material Nonpublic Information, (b) the requirement that such trade be made only during a Window Period, or (c) the requirement, to the extent applicable, that such individual trade be pre-cleared (specifically) by the Compliance Officer. However, the Company reserves the right to prohibit any transactions in Company securities, even pursuant to a previously approved 10b5-1 Arrangement previously approved, if the Company’s Board of Directors determines that such prohibition is in the best interests of the Company.

5.3. Temporary Blackout Periods

There may be other circumstances where the Company will impose a temporary blackout period on Insiders and/or other employees if the Company's Compliance Officer or the Company’s Chief Executive Officer, in consultation with the Company Board of Directors, determines that circumstances warrant a halt in trading by those persons. The Compliance Officer shall appropriately notify the affected individuals of the existence of any temporary blackout period. Those persons may not trade in the Company’s securities until the temporary blackout period expires or is terminated, and they are prohibited from disclosing the existence of the temporary blackout period to any other persons.

5.4. Policy Exceptions

Exceptions to this Policy may be made only with the written approval, prior to effecting the transaction, from the Company's Compliance Officer and may be conditioned as the Compliance Officer deems advisable.

VIOLATIONS OF THE INSIDER TRADING LAWS CAN LEAD TO SIGNIFICANT FINES, IMPRISONMENT AND OTHER PENALTIES FOR THOSE INDIVIDUALS INVOLVED. FAILURE TO ADHERE STRICTLY TO THIS POLICY WILL RESULT IN SERIOUS CONSEQUENCES AND MAY RESULT IN TERMINATION OF EMPLOYMENT.

INTERNATIONAL STEM CELL CORPORATION

INSIDER TRADING POLICY

Effective Tuesday, June 15, 2021

EMPLOYEE/DIRECTOR ACKNOWLEDGEMENT

I, _____, hereby certify that I have read and understand the above rules, and agree to adhere strictly to them. I further certify that, to the best of my knowledge, I have complied with this Policy and its procedures since the date the Policy was adopted (or during my term of employment, directorship or provision of services, if after such date) and that I will continue to adhere to this Policy and these procedures in the future.

Without limiting the preceding paragraph, I understand that the Compliance Officer will be required, and will have the discretion to, exercise his or her judgment in determining whether to (a) approve particular transactions by me in Company securities or my establishment of any plans or arrangements for trading in Company securities or (b) subject me to any temporary "blackout periods."

I recognize that the Compliance Officer will be required to analyze and assess any request I may make to engage in a particular transaction or to establish any plan or arrangement relating to trading in the Company's securities, based on verifiable information available to the Compliance Officer at the time of the request and in the context of the Company's intent to preserve its reputation for maintaining the highest legal, business and ethical standards, as well as the Company's obligation to comply with all laws and regulations pertaining to insider trading.

I acknowledge and affirm that the Compliance Officer's determination with regard to any particular transaction, plan or arrangement or blackout period will be made solely on behalf of, and for the benefit of, the Company and further acknowledge and affirm the Compliance Officer's right to make that determination in his or her sole discretion.

I hereby agree to be bound by, and to accept without objection, any determination of the Compliance Officer not to permit any such transaction, plan or arrangement or to subject me to any such blackout period.

I UNDERSTAND THAT FAILURE TO ADHERE STRICTLY TO THIS POLICY WILL RESULT IN SERIOUS CONSEQUENCES INCLUDING TERMINATION OF MY EMPLOYMENT.

Signature:

Print Name:

Print Title:

Date:

Consent of Independent Registered Public Accounting Firm

We hereby consent to the incorporation by reference in the Registration Statements on Form S-1 (Nos. 333-210840, 333-201589, and 333-199779) 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 28, 2025, relating to the consolidated financial statements, which appears in this Annual Report on Form 10-K. Our report contains an explanatory paragraph regarding the Company’s ability to continue as a going concern.

/s/ BDO USA, P.C.

San Diego, California
March 28, 2025

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 28, 2025

/s/ ANDREY SEMECHKIN
Andrey Semechkin
Chief Executive Officer
(Principal Executive Officer)

CERTIFICATION OF CHIEF FINANCIAL OFFICER

I, Russell Kern, 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 28, 2025

/s/ RUSSELL KERN

Russell Kern

*Executive VP, Chief Scientific Officer, and Director
(Principal Financial and Accounting Officer)*

**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, 2024 as filed with the Securities and Exchange Commission on March 28, 2025 (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 28, 2025

/s/ ANDREY SEMECHKIN

Andrey Semechkin
Chief Executive Officer
(Principal Executive Officer)

**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, 2024 as filed with the Securities and Exchange Commission on March 28, 2025 (the “Report”), I, Russell Kern, Executive Vice President, Chief Scientific Officer and Director 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 28, 2025

/s/ RUSSELL KERN
Russell Kern
*Executive VP, Chief Scientific Officer, and Director
(Principal Financial and Accounting Officer)*

