International Stem Cell Corporation (ISCO-OTC.QB)

Quarterly Update: September 17, 2013

Company Description

International Stem Cell Corporation ("ISCO" or "the Company") is a biotechnology company focused on therapeutic applications of human parthenogenetic stem cells (hpSCs) to treat diseases of the brain, liver, and eye, as well as on the development and commercialization of biomedical products. According to the Company, hpSC is the only histocompatible stem cell (SC) platform capable of generating SC lines that can immune-match millions of people. ISCO has focused its therapeutic efforts in three markets where cell therapy has been clinically proven, but where there is a shortage of safe cells or tissue: (1) Parkinson's disease (PD); (2) inherited metabolic liver diseases; and (3) corneal blindness. The Company believes these markets may have a combined revenue potential of over \$5 billion. ISCO is also developing an SC bank, UniStemCell™, which already contains enough histocompatible lines to immune-match over 75 million people. In addition, the Company produces and markets specialized cells and growth media for therapeutic research through its subsidiary Lifeline Cell Technology, and SC-based skin care products through its subsidiary Lifeline Skin Care. Revenue generated from ISCO's subsidiaries—which totaled \$4.6 million in 2012—supports the development of the Company's therapeutic programs. ISCO believes that its proprietary technology platform and business model result in three key competitive advantages: immune-matching SCs, proven cell therapy targets, and substantial revenue from commercial operations.

Key Points

- To date, ISCO has created 15 hpSC lines, including the first clinical-grade hpSC lines believed to meet FDA regulations. The Company has published and patented methods to generate pure, well-characterized populations of both neural cells and hepatocyte-like cells as well as the differentiation of 3D corneal constructs.
- Following positive preclinical results demonstrating the therapeutic benefit and safety of ISCO's SC-derived neuronal cells in its PD program, the Company initiated IND-enabling pharmacology and toxicology non-human primate studies, with preliminary results expected by the end of 2013.
- In August 2013, ISCO entered into a master clinical research agreement with Duke University to conduct clinical trials research in PD using the Company's neural SC product.
- The global market for therapeutic SC products was \$3.8 billion in 2011, projected to reach \$6.6 billion by 2016.
- ISCO has a broad intellectual property portfolio, including 130 patents and licenses and over 90 patent applications covering many types of SCs, including parthenogenesis and induced pluripotent stem (iPS) cells.
- At June 30, 2013, ISCO had cash and cash equivalents of approximately \$654,000. In addition, in July 2013, the Company conducted a public offering resulting in roughly \$2.5 million in net proceeds, as detailed on page 3.



International Stem Cell Corporation

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Ticker (Exchange)	ISCO (OTC.QB)
Recent Price (09/17/2013)	\$0.15
52-week Range	\$0.13 - \$0.41
Shares Outstanding	132.6 million
Market Capitalization	\$19.9 million
Average 3-month Volume	440,181
Insider Ownership +>5%	43.49%
Institutional Ownership	18.65%
EPS (Qtr. ended 06/30/2013)	(\$0.02)

Employees



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Recent Events and Financial Results

Recent Events

An overview of the Company's recent news announcements is provided below, referring the reader to ISCO's website for complete news releases at www.internationalstemcell.com.

- On September 9, 2013, ISCO announced continuous progress in its Parkinson's disease (PD) program, with a key opinion leader meeting facilitated by the study's principal investigator, Dr. Mark Stacy of Duke Medicine. The meeting included the participation of experts in the field of cell therapy and movement disorders, and provided ISCO with critical feedback, insights, and guidance that can be included in the final preclinical primate studies and for the design of the first-in-man study, which is expected to begin in 2014.
- On August 28, 2013, the Company announced its participation in Rodman & Renshaw's 15th Annual Global Investment Conference sponsored by H.C. Wainwright & Co., LLC, which was held September 8-10, 2013, in New York City. Dr. Simon Craw, ISCO's executive vice president, provided an overview of the Company's business and conducted one-on-one meetings with investors.
- On August 21, 2013, ISCO announced that it entered into a master clinical research agreement with Duke University to conduct clinical trials research in PD using the Company's neural SC product. The research is to be coordinated by the Duke Clinical Research Institute (DCRI), the world's largest academic clinical research organization. Dr. Stacy, vice dean for clinical research, neurology at Duke University School of Medicine and a leader in the field of movement disorders, including PD, is the study's principal investigator.

Financial Results

On August 8, 2013, ISCO announced financial results for the three and six months ended June 30, 2013.

Results for the Second Quarter 2013

ISCO is considered a development-stage entity with no revenue generated from its principal operations in therapeutic research and development. However, the Company generates revenues from the operations of its subsidiaries, Lifeline Skin Care (LSC) and Lifeline Cell Technology (LCT) to support its core therapeutic research and development efforts.

Total revenue for the quarter ended June 30, 2013, was \$1.46 million versus \$1.06 million for the three months ended June 30, 2012, a 38% increase. In the three months ended June 30, 2013, sales for LSC—\$708,000—and LCT—\$748,000—increased by 36% and 40%, respectively.

General and administrative (G&A) expenses for the second quarter 2013 declined 5% to \$1.67 million, due to lower personnel-related expenses resulting from lower headcount, lower stock-based compensation expenses, and lower professional and corporate expenses. Marketing expenses increased 24% year over year to \$0.68 million, reflecting higher spending on advertising and promotions for the skin care business.

For the second quarter 2013, the Company reported a net loss of \$2.20 million versus a net loss of \$2.48 million during the same period 2012. The improvement is mainly due to increased revenues and decreased G&A expenses.



Results for the First Half of 2013

For the first six months of 2013, the Company reported a net loss of \$3.91 million versus a net loss of \$5.15 million during the same period of 2012.

Revenue for the six months ended June 30, 2013 and 2012 was \$2.74 million and \$2.13 million, respectively. LCT contributed \$1.38 million in revenue in the first half of 2013, up 30% from the same period in 2012 and LSC contributed \$1.36 million, up 27% from the same period in 2012.

G&A expenses for the six months ended June 30, 2013, were \$3.10 million, a decrease of 18% versus \$3.79 million for the same period in 2012. The decrease is, once again, primarily attributable to lower stock-based compensation, reduced employee headcount, and lower consulting, legal, and professional fees.

In the first half of 2013, the Company executed two major equity funding activities. In January 2013, ISCO announced that the Company's chief executive officer (CEO), Dr. Andrey Semechkin, and its executive vice president (EVP), Dr. Simon Craw, purchased a total of 10,125,000 shares of common stock, generating over \$2 million for the Company. In March 2013, the Company raised an additional \$1 million through a transaction with a small number of existing shareholders.

Financing Activity—July 2013

Subsequent to the end of the second quarter 2013, the Company completed a financing transaction, raising approximately \$2.5 million in net proceeds.

The funds were generated by a public offering, announced on July 19, 2013, of 20 million units, at \$0.15 per unit, with each unit consisting of one share of ISCO's common stock and one Series A Warrant to purchase one share of its common stock at a price of \$0.15 per share. In addition, ISCO also offered up to 20 million series B warrants, exercisable at a price of \$0.15, for one share of ISCO's common stock and one series A warrant. Dr. Andrey Semechkin, ISCO's co-chairman and chief executive officer, purchased 5,998,999 units and 5,998,999 series B warrants, and Dr. Ruslan Semechkin, ISCO's vice president of research and development, purchased 667,667 units and 667,667 series B warrants.

The Company intends to use the net proceeds from this offering to fund its research and development activities and for general working capital needs. More information about the Company's public offering can be found in the prospectus filed at:

http://www.sec.gov/Archives/edgar/data/1355790/000119312513295805/d418224d424b4.htm.



Company Background

International Stem Cell Corporation ("ISCO" or "the Company") is a biotechnology company focused on the therapeutic applications of human parthenogenetic stem cells (hpSCs) to treat diseases of the brain, liver, and the eye, as well as on the development and commercialization of cell-based research and cosmetic products. ISCO's core proprietary technology, parthenogenesis, refers to a form of asexual reproduction in which an egg develops without being fertilized by a male gamete. The creation of hpSCs involves the stimulation of a human oocyte (egg) to start the cell division process without actual fertilization. Since the eggs are not fertilized, no viable human embryo is created nor destroyed for the generation of ISCO's stem cell (SC) lines. In addition, according to the Company, the histocompatibility profile of hpSCs makes this the only SC platform capable of generating SC lines that can immune-match millions of people.

The Company's therapeutic efforts are concentrated in three markets where cell therapy has been clinically proven, but where there is a shortage of safe cells or tissue: (1) Parkinson's disease (PD); (2) inherited metabolic liver disease; and (3) corneal blindness. ISCO believes these markets could have a combined revenue potential of over \$5 billion. ISCO is also employing its proprietary SC technology to develop an SC bank, UniStemCell™, which already contains enough histocompatible SC lines to immune-match over 75 million people.

In addition, the Company produces and markets specialized cells and growth media for therapeutic research through its subsidiary Lifeline Cell Technology (www.lifelinecelltech.com) and SC-based skin care products through its subsidiary Lifeline Skin Care (www.lifelineskincare.com). During 2012, these companies generated approximately \$4.6 million in sales. Figure 1 depicts ISCO's corporate structure and areas of operation.

Figure 1
CORPORATE STRUCTURE

Therapeutic Applications

Stem Cell Bank

Lifeline Cell Technology

Parkinson's Disease
Metabolic Liver Disease
Corneal Blindness

Lifeline Skin Care

Lifeline Skin Care

ISCO utilizes its proprietary platform technology to operate under a novel business model, combining the revenue-generating commercial operations of its subsidiary business units—Lifeline Cell Technology and Lifeline Skin Care—to financially support the Company's scientific research as well as the development of its therapeutic programs.

Stem Cell Overview

SCs are the body's raw materials—cells from which all other cells are generated. Under specific conditions, undifferentiated SCs can be induced to become the many different tissue- or organ-specific cells in the body. In addition, SCs are capable of renewing themselves, thereby serving as an internal repair system that replaces bodily cells as they are lost through normal wear and tear, injury, or disease. One of the most important therapeutic applications of SCs is as a cell-based therapy—also known as regenerative or reparative medicine—which consists of the replacement of diseased or injured cells with SCs. Differentiated (specialized) SCs could provide a renewable source of replacement cells to treat illnesses, including neurological conditions, metabolic diseases, heart disease, and autoimmune diseases, among others.



The global market for therapeutic SC products was \$3.8 billion in 2011, and is expected to reach nearly \$6.6 billion by 2016 (Source: BCC Research's *Global Markets for Stem Cells*, July 2012). Many adult SC-based therapies are currently in use in the form of bone marrow transplants to treat leukemia, lymphoma, and inherited blood disorders. The success of these procedures has validated the use of SC transplantation as a therapeutic concept.

Types of Stem Cells

The most commonly used SCs for research purposes are embryonic stem cells (ESCs), adult (or somatic) stem cells, and induced pluripotent stem (iPS) cells—noting that ISCO is pioneering an alternative approach designed to avoid the complications of each of these cell lines by using a novel class of SCs.

Embryonic Stem Cells

The first pluripotent SCs to be studied were ESCs. Most human ESCs are derived from oocytes that have been fertilized *in vitro* at fertilization clinics, but never implanted in a woman's uterus. Once the SCs are extracted and a cell line is established, the original cells can yield millions of ESCs. The creation of SC banks allows researchers to access new SCs for experimentation without being dependent on a continued supply of eggs. Eventually, scientists can induce the ESCs to differentiate into specific cell or tissue types.

Due to their pluripotent nature, ESCs have potential for use as a cell-based therapy. However, therapeutic applications of human ESCs have been limited to date due to their immune-compatibility profile. A patient's immune system might recognize the transplanted ESCs as foreign and attack them, requiring the use of immune-suppressing drugs. The degree of risk is proportional to the degree of disparity between donor and recipient Human Leukocyte Antigen (HLA) haplotype.

For instance, when the donor and recipient share the same HLA proteins on their white blood cells, they are considered to be a good match for transplant purposes. However, a poor match can cause the recipient to reject the transplanted cells. HLA haplotypes are inherited and even siblings only have a 1 in 4 chance of being an identical match (Source: Stanford University's *Kidney Transplantation: Past, Present, and Future*). In addition, ESC research has been hindered by funding and regulatory restrictions derived from its perceived ethical concerns, mainly due to the fact that when used for SC generation, the fertilized egg no longer has the potential to become a fully developed human being. ISCO has overcome these concerns by using a novel class of SCs that is not composed of ESCs.

Adult (Somatic) Stem Cells

An adult (or somatic) SC is an undifferentiated cell found in the body's tissues and organs that can renew itself and differentiate into specialized cell types. Unlike ESCs, adult SCs are already partially specialized, thus they can only differentiate into certain types of cells. However, recent research suggests that adult SCs might be able to produce a wider variety of cell types than initially thought.

The use of adult SCs in research and therapy is not as controversial as the use of ESCs because the production of adult SCs does not require the destruction of an embryo. However, adult cells are difficult to grow in culture and are present in small amounts. As a result, isolating them is not only challenging but could cause considerable tissue or organ damage, especially in sensitive regions such as the brain or heart. Another limitation of adult cells is that they are not optimal for the treatment of genetic diseases, as the adult cell contains the damaged genetic information. ISCO does not require adult SCs in its new, innovative SC technology.

Induced Pluripotent Stem Cells

Induced pluripotent stem (iPS) cells are cells created artificially in the laboratory by genetically "reprogramming" adult SCs to display an ESC-like state. Like ESCs, iPS cells can be differentiated into any cell in the body. This technology has attracted attention because it may help researchers avoid the ethical controversies that come with ESCs, while holding potential utility for multiple applications. However, despite successes in animal models, iPS cell technology is not yet ready for use in humans. In addition, the required reprogramming of the cell's genes, as well



as the virus or deoxyribonucleic acid (DNA) constructs currently used to insert the genetic material into the cell, have raised safety concerns in developing treatments. ISCO does not require iPS cells in its proprietary SC approach, as described below.

ISCO's Technology—Human Parthenogenetic Stem Cells

ISCO is developing a new class of SCs—called human parthenogenetic stem cells (hpSCs)—that the Company believes display the characteristics required for the development of therapeutic applications while avoiding the safety and ethical concerns inherent with existing SC technologies. The creation of hpSCs starts by stimulating a human egg into reacting as if it has been fertilized and subsequently starting the cell division process. ISCO has shown that hpSCs can expand indefinitely in their undifferentiated state and differentiate into all major cell types, which are the two most important properties of SCs.

ISCO believes that its proprietary technology provides medical, economic, and ethical advantages versus other SC technologies. On the medical front, since hpSCs are created without male fertilization, they express a lower number of parental histocompatibility antigens, believed to result in a superior immune-compatibility profile. This could address the immune-matching concerns of ES therapy. Since hpSCs do not need to originate from their intended recipient, hpSCs also offer the potential to treat genetic diseases. In addition, unlike methods requiring the use of viruses or DNA constructs that may integrate into the genome, ISCO's method does not alter the nature of the genes in the cells, reducing safety concerns.

The immune-matching capabilities of hpSCs also provide economic benefits. Since the immune profile of hpSCs allows the cells to immune-match a larger percent of people with fewer SC lines, the Company's SC line requirements to expand its therapeutic treatments among the general population could be reduced. Furthermore, since no viable embryo is destroyed, hpSCs avoid the primary ethical issues associated with SC research. To date, ISCO has derived 15 hpSC lines. In addition, the Company has made hpSC technology available to academic and corporate research worldwide for studies on a wide range of disease targets.

Therapeutic Programs

ISCO is currently focusing on three areas with significant medical need and sizeable market potential: (1) Parkinson's disease (PD); (2) inherited metabolic liver disease; and (3) corneal implants. Cell and tissue therapy has already been validated in each of these three indications; however, there are limitations to existing therapies, including an insufficient supply of safe and efficacious cells.

In November 2012, the Company announced the generation of what, to its knowledge, are the world's first human clinical-grade hpSCs lines. The new SC lines were derived under U.S. and California regulatory frameworks and were designed to meet U.S. Food and Drug Administration (FDA) regulations. ISCO's existing research-grade parthenogenetic SC lines are currently used to support its preclinical programs and trials. The new clinical-grade SC lines position ISCO to transition into a clinical-stage company.

Parkinson's Disease (PD)

The Company's work on PD focuses on the replacement of dopaminergic neurons, the loss of which is known to be the cause of the disease. ISCO has developed a new method to derive high-purity populations of neural stem cells (NSCs) from hpSCs and further differentiate them into dopaminergic neurons suitable for implantation. This work has recently been published in *Scientific Reports*, a research journal from publishers of *Nature* (Source: *Scientific Reports* 3, Article Number 1463, March 2013).

Through its *in vitro* research, the Company was able to show the creation of pure, well-characterized populations of NSCs, as well as demonstrate their functional capacity in terms of signaling and dopamine release. Furthermore, results of the Company's *in vivo* studies, which involved injecting the hpSC-generated human neuronal cells into the center of rats' brains, showed that the human cells survived in the rat brains for over four months after transplant while displaying neural functionality.



In addition, preliminary results of an additional preclinical *in vivo* study showed that a single injection of hpSC-derived neuronal cells into the striatum of rats can lead to a significant slowdown in the progression of the disease, with the rats in the treatment group showing gradual improvements in motor symptoms consistent with cells' survival, engraftment, and dopamine release. The positive results from the initial *in vivo* rodent studies led to the commencement of a series of non-human placebo controlled primate studies, which ISCO designed to measure the safety, viability, and functional efficacy of implanted neuronal cells in African green monkeys, the most widely used model of Parkinson's disease.

The first primate study employed eight African green monkeys with low levels of dopamine induced by bilateral injections of the neurotoxin MPTP. Subsequent to implantation of the neuronal cells, all monkeys in the treatment group had higher levels of dopamine in the brain compared with the control group. Additionally, no adverse events, including dyskinesia, deformations, tumors, or overgrowth, were observed. The Company believes that the results of both rodent and primate studies, which were presented at the 65th American Academy of Neurology Annual Meeting on March 20, 2013, provide evidence of the safe and disease-modifying effects that implantation of hpSC-derived neuronal cells can provide.

Building on the positive results, on May 30, 2013, ISCO announced the initiation of an Investigational New Drug (IND)-enabling non-human primate pharmacology and toxicology study for its PD program under the direction of Yale School of Medicine Professor D. Eugene Redmond Jr., M.D. The study uses non-human primates with moderate to severe PD symptoms to assess the safety and functional efficacy of ISCO's proprietary SC-derived neuronal cells. The Company believes that this study represents the foundation for filing an IND application in 2014. The initial interim results are expected at the end of 2013, with the final results expected in the second quarter 2014.

Furthermore, ISCO entered into a master clinical research agreement with Duke University's Duke Clinical Research Institute (DCRI), one of the world's largest academic clinical research organizations, to conduct clinical trials research in PD using ISCO's neural SC product. The study's principal investigator, Mark Stacy, M.D., is the vice dean for clinical research, neurology at Duke University School of Medicine and a leader in the field of movement disorders, including PD.

On September 9, 2013, Dr. Stacy facilitated a key opinion leader meeting, bringing together a number of experts in the field of cell therapy and movement disorders to provide ISCO with critical feedback, insights, and guidance that can be used for the design of the Company's final preclinical primate studies and the first-in-man study for its PD program.

Inherited Metabolic Liver Disease

ISCO's metabolic liver disease program covers the Company's research on both the liver and pancreas, as these organs have a common cellular origin. The initial emphasis is on the creation of pure populations of hpSC-derived hepatocytes. Disease targets include Crigler-Najjar syndrome (CNS) and Alpha-1-Antitrypsin deficiency (Alpha-1), both of which fall under the FDA's Orphan Drug Designation program.

The Company has been able to characterize hpSC-derived hepatocyte-like cells (HLCs) both *in vivo* and *in vitro*. Positive top-line efficacy results of the Company's *in vivo* studies, consisting of the implantation of hpSC-derived HLCs into Gunn rats (a well-established and validated animal model for CNS), demonstrate the ability of these cells to engraft, mature, and express liver-specific proteins in rodents. Furthermore, results of the study showed that the implanted cells behaved in a manner similar to primary human hepatocytes, suggesting the therapeutic equivalence of the HLCs to adult liver cells.



Cornea Tissue Implants

The Company's corneal program is focused on the differentiation of hpSCs and ESCs into cornea-like constructs for use in transplantation therapy. ISCO developed a proprietary method for the *in vitro* differentiation and generation of 3D human corneal constructs, which demonstrated a range of structural, biochemical, and refractory properties characteristic of human cornea, including the basic anatomic layering, gene, and protein expression patterns, rapid permeability to ophthalmic drugs, and no opacity.

ISCO believes that this 3D structure represents a significant advancement in SC therapy research since the process not only differentiated SCs into the appropriate types of specialized cells, but was also able to accomplish the generation of functional mini-organs with the appropriate structural complexity. The Company plans to initially commercialize this program through ISCO's subsidiary in India, in partnership with key Indian biomedical organizations, including the Sankara Nethralaya Eye Hospital and the All-India Institute for Medical Sciences.

UniStemCell™ Stem Cell Bank

ISCO's SC bank, UniStemCell™, is believed to be the life science industry's first collection of non-embryonic, histocompatible human SCs available for research and commercial use. The bank offers the ability to create therapeutic cells with all of the benefits of hpSCs, including immune-matching millions of individuals of differing genders, ages, and racial backgrounds.

ISCO's SC bank currently contains 15 parthenogenetic SC lines, including three cGMP grade lines. One of the lines carries the most common immune type (haplotype) and immune-matches approximately 70 million people worldwide. According to the Company, 25 lines of the appropriate haplotypes could immune-match 35% of the U.S. population.

Commercial Operations

Lifeline Cell Technology (LCT) is a business-to-business research products company that commercializes purified primary human cells, media, and reagents for cell culture and therapeutic research. LCT's portfolio of biomedical offerings includes over 130 products. ISCO markets its products domestically and internationally through its inhouse sales force, strategic alliances, international distributors, and original equipment manufacturer (OEM) partners.

Lifeline Skin Care (LSC) is a company that develops, manufactures, and markets advanced anti-aging skin care products based on growth factors and peptides extracted from hpSCs. LSC's products were introduced in November 2010.

Corporate Information

ISCO was incorporated in June 2006 for the purpose of restructuring the LCT business, which was organized in August 2001, with LCT becoming ISCO's wholly owned subsidiary. On December 28, 2006, ISCO performed a reverse merger with BTHC III, Inc. Today, the Company is headquartered in Carlsbad, California, with current Good Manufacturing Practice (cGMP) cell manufacturing facilities in Oceanside, California, and Frederick, Maryland. In addition to its three executive officers, ISCO has 41 full-time staff members.



Key Points to Consider

- International Stem Cell Corporation ("ISCO" or "the Company") is a biotechnology company focused on the development and therapeutic applications of human parthenogenetic stem cells (hpSCs), which display characteristics required for the development of therapeutic applications while avoiding the safety, economic, and ethical concerns inherent with alternative stem cell (SC) technologies.
- The creation of the Company's hpSCs involves using parthenogenesis (a form of asexual reproduction) to stimulate a human egg (oocyte) into reacting as if it has been fertilized and allowing it to start the cell division process. Since the eggs are not fertilized, no viable embryo is created, thus the Company's technology is believed to avoid the ethical controversy associated with the destruction of a human embryo for the generation of therapeutic and research SCs.
- ISCO's core technology creates pluripotent human SCs that can be immune-matched to millions of different people. The immune-compatibility profile of hpSCs is expected to decrease the likelihood that transplanted SCs will be recognized as foreign, and thus rejected, by the recipient's immune system.
- To date, ISCO has successfully derived and characterized 15 hpSC lines, including both HLA homozygous (which may be histocompatible with significant segments of the human population) and HLA heterozygous lines (which are HLA-matched and histocompatible with the donors).
 - o In November 2012, the Company announced the generation of what is believed to be the world's first human clinical-grade hpSCs lines, created using ISCO's proprietary technology and designed to meet FDA regulations. The new clinical-grade SC lines position ISCO to transition into a clinical-stage company.
 - The global market for therapeutic SC products was \$3.8 billion in 2011 and is expected to reach nearly \$4.3 billion in 2012 and \$6.6 billion by 2016.
- The Company focuses its therapeutic efforts on three markets where cell therapy has been clinically proven, but where there is a shortage of safe cells or tissue. These markets are believed to have a combined revenue potential of over \$5 billion: (1) Parkinson's disease (PD); (2) inherited metabolic liver disease; and (3) corneal blindness. ISCO is also using its proprietary technology to develop an SC bank, UniStemCell™, which, to the Company's knowledge, is the industry's first collection of non-embryonic, histocompatible human SCs available for research and commercial use.
- ISCO's preclinical research has demonstrated the Company's ability to differentiate pure, well-characterized population of both neural cells and hepatocyte-like cells, displaying the ability to survive transplantation in rat models of the respective disease, as well as showing structural and functional capacity. In addition, ISCO has been able to derive 3D corneal constructs with properties characteristic of human corneas.
- Following positive preclinical results demonstrating the therapeutic benefit and safety of ISCO's SC-derived neuronal cells in its PD program, the Company initiated IND-enabling pharmacology and toxicology non-human primate studies, with preliminary results expected by the end of 2013.
- In addition, the Company produces and markets specialized cells and growth media for therapeutic research through its subsidiary Lifeline Cell Technology, and SC-based skin care products through its subsidiary Lifeline Skin Care. During 2012, the subsidiaries generated approximately \$4.6 million in sales.
- The Company's management includes individuals with extensive experience in key areas including SC and pharmaceutical research, cell production and manufacturing, use of SCs in neurological applications, and international business development.
- At June 30, 2013, ISCO had cash and cash equivalents of approximately \$654,000. In addition, in July 2013, the Company conducted a public offering resulting in roughly \$2.5 million in net proceeds.



Risks and Disclosures

This Quarterly Update has been prepared by International Stem Cell Corporation ("ISCO" or "the Company") with the assistance of Crystal Research Associates, LLC ("CRA") based upon information provided by the Company. CRA has not independently verified such information. Some of the information in this Update relates to future events or future business and financial performance. Such statements constitute forward-looking information within the meaning of the Private Securities Litigation Act of 1995. Such statements can only be predictions and the actual events or results may differ from those discussed due to the risks described in ISCO's statements on Forms 10-K, 10-Q, and 8-K, as well as other forms filed from time to time.

The content of this report with respect to ISCO has been compiled primarily from information available to the public released by the Company through news releases, Annual Reports, and U.S. Securities and Exchange Commission (SEC) filings. ISCO is solely responsible for the accuracy of this information. Information as to other companies has been prepared from publicly available information and has not been independently verified by ISCO or CRA. Certain summaries of activities and outcomes have been condensed to aid the reader in gaining a general understanding. CRA assumes no responsibility to update the information contained in this report. In addition, CRA has been compensated by the Company in cash of sixty three thousand U.S. dollars for its services in creating the base Executive Informational Overview®, for updates, and for printing. For more complete information about ISCO as well as the risks involved in an investment in the Company, please refer to Crystal Research Associates' base report, the Executive Informational Overview® (EIO) dated August 5, 2013, and located on Crystal Research Associates' website at www.crystalra.com.

Investors should also carefully consider the risks and information about ISCO's business described in the Company's Form 10-Q filed with the SEC on August 8, 2013: http://www.sec.gov/Archives/edgar/data/1355790/000119312513324958/d550455d10q.htm.

Investors should not interpret the order in which considerations are presented in this or other filings as an indication of their relative importance. The risks and uncertainties overviewed in ISCO's Form 10-K are not the only risks that the Company faces. Additional risks and uncertainties not presently known to ISCO or that it currently believes to be immaterial may also adversely affect the Company's business. If any such risks and uncertainties develop into an actual event, ISCO's business, financial condition, and results of operations could be materially and adversely affected, and the trading price of the Company's shares could decline.

This report is published solely for information purposes and is not to be construed as an offer to sell or the solicitation of an offer to buy any security in any state. Past performance does not guarantee future performance. Additional information about ISCO and its public filings, as well as copies of this report, can be obtained in either a paper or electronic format by calling (760) 940-6383.



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QUARTERLY UPDATE: September 17, 2013

Crystal Research Associates, LLC About Our Firm: (www.crystalra.com) is an independent research firm that has provided institutional-quality research on small- and mid-cap companies for the past decade. Our firm's unique and novel product, the Executive Informational Overview® (EIO), is free of investment ratings, target prices, and forward-looking financial models. The EIO presents a crystal clear, detailed report on a company (public or private) in a manner that is easily understood by the Wall Street financial community. The EIO details a company's product/technology/service offerings, market size(s), key intellectual property, leadership, growth strategy, competition, risks, financial statements, key events, and other such fundamental information.

Crystal Research Associates is led by veteran Wall Street sell-side analyst Jeffrey Kraws, who is well known by the international financial media for his years of work on Wall Street and for providing consistent award-winning analyses and developing long-term relationships on both the buy-side and sell-side. He has been consistently ranked on Wall Street among the Top Ten Analysts for pharmaceutical stock performance in the world for almost two decades as well as ranked as the Number One Stock Picker in the world for pharmaceuticals by Starmine and for estimates from Zacks. Additionally, Mr. Kraws has been 5-Star Ranked for top biotechnology stock performance by Starmine.

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