



The discovery and development of stem cell therapeutics

StemCells, Inc. (Nasdaq: STEM), is engaged in the discovery and development of cell-based therapeutics to treat damage to, or degeneration of, major organ systems. Our aim is to restore or support organ function by identifying and developing stem and progenitor cells as potential therapeutic agents. We have pioneered the discovery and development of HuCNS-SC[®] cells, our highly purified, expandable population of human neural stem cells. In January 2009, we completed a six patient Phase I clinical trial of our HuCNS-SC product candidate as a treatment for infantile and late infantile neuronal ceroid lipofuscinosis (NCL). NCL, which is often referred to as Batten disease, is a fatal neurodegenerative disease that affects infants and young children. We believe this was the first trial to use a purified composition of human neural stem cells as a potential therapeutic agent in humans. In December 2008, the FDA approved our IND to initiate a Phase I clinical trial of our HuCNS-SC cells in a second indication, Pelizeaus-Merzbacher Disease, a rare myelination disorder of the brain. We have also discovered human liver engrafting cells (hLEC), a population of cells isolated from primary human tissue. The hLEC engraft in animal models and produce important human proteins that are missing or deficient in liver disease. Our goal is to initiate a clinical study of the hLEC as a potential cellular therapy, and our first indication would likely be liver-based metabolic disorders.

COMPANY HIGHLIGHTS

Industry Leader: StemCells is a publicly traded company focused on developing cell-based therapeutics using stem and progenitor cells. We pioneered the discovery and development of HuCNS-SC cells, our highly purified, expandable population of human neural stem cells. We have also discovered human liver engrafting cells (hLEC), a population of cells isolated from primary human tissue that engraft *in vivo* in animals and produce important human proteins that are missing or deficient in liver disease.

Neural Program in Clinical Development: We completed a Phase I clinical trial to evaluate HuCNS-SC for NCL in January 2009. We expect to report the trial results in mid-2009. In December 2008, the FDA approved our IND to initiate a Phase I trial in PMD. We expect this trial to begin enrolling patients in 2009 and that it will take 12-18 months to complete.

Preclinical Work for Additional Neural Indications: StemCells has shown that HuCNS-SC can prevent or slow the loss of visual function in a well-established model of retinal degeneration, suggesting HuCNS-SC cells may have potential to address retinal disorders such as macular degeneration or retinitis pigmentosa. We have also shown in preclinical models that HuCNS-SC cells restore motor function in an animal model of spinal cord injury.

Unparalleled IP Position in Neural Stem Cell Field: StemCells has more than 40 U.S. and 100 foreign patents in its neural stem cell patent portfolio, with claims covering composition of matter and a broad range of processes and methods of use. We have granted five non-exclusive licenses to its neural stem cell IP.

Liver Program in Preclinical Development: StemCells has isolated a population of human liver engrafting cells (hLEC) that engraft in animal models and produce important human proteins that are missing or deficient in liver disease. We plan to seek the necessary approvals to initiate a clinical study to evaluate hLEC as a potential cellular therapy, with the initial indication likely to be liver-based metabolic disorders.

World-Renowned Scientific Founders: Our founders, **David Anderson, Ph.D.**, **Fred Gage, Ph.D.** and **Irving Weissman, M.D.**, are celebrated pioneers in stem cell biology, in the fields of peripheral nervous system, CNS and hematopoietic stem cells, respectively.

Financial Data: Cash, cash equivalents and marketable debt securities at Dec 31, 2008 totaled \$34.0 million. The Company raised \$6.7 million in Q1 2009, for *pro forma* cash balance of \$40.7 million. Net cash used in operating activities in 2008 was \$22.7 million.

Experienced Management Team:

Martin McGlynn, President & CEO has 35 years life science experience including leadership roles at Becton Dickinson, Abbott Labs, BOC Health Care and most recently as CEO of Pharmadigm.

Ann Tsukamoto, Ph.D., Executive VP, Research & Development, is a leader in stem cell discovery and development with ~20 years scientific and regulatory experience. She is inventor on 7 issued US patents related to the human hematopoietic stem cell.

Rodney Young, Chief Financial Officer, has many years of financial and administrative experience in the healthcare field. He previously was CFO of Extropy Pharmaceuticals, and was an investment banker for 13 years at Lehman Brothers and Cowen.

Stewart Craig, Ph.D., Senior VP, Development & Operations, has over 23 years of experience in the biotechnology industry. He has held executive positions at SyStemix, Osiris, Xcyte Therapies, and Progenitor Cell Therapy and has extensive experience in all areas related to the research, development, manufacture, delivery and regulation of cell-based products.

Stephen Huhn, M.D., F.A.C.S., F.A.A.P., VP, Head of CNS Program, manages all pre-clinical and clinical development programs related to CNS indications. He was formerly an associate professor of neurosurgery and chief of pediatric neurosurgery at Stanford School of Medicine.

Maria Millan, M.D., F.A.C.S., VP, Head of Liver Program, manages pre-clinical and clinical development programs related to the liver. She was formerly an associate professor of surgery and director of the pediatric kidney and liver transplant programs at Stanford School of Medicine.

Nobuko Uchida, Ph.D., VP, Stem Cell Biology, has 10+ years experience in cell and molecular biology and developed methods for hematopoietic stem cell isolation and characterization. She is inventor on 3 issued US patents and 5 pending patent applications

Strong Board of Directors:

John J. Schwartz, Ph.D., Chairman of the Board; Principal, Quantum Management Strategies.

Eric H. Bjerkholt, SVP and CFO, Sunesis Pharmaceuticals, Inc.

Ricardo B. Levy, Ph.D., Chairman, Catalytica Energy Systems

Martin McGlynn, President and CEO, StemCells, Inc.

Roger M. Perlmutter, M.D., Ph.D., EVP, R&D, Amgen Inc.

Irving L. Weissman, M.D., Professor of Cancer Biology, Pathology and Developmental Biology, Stanford University.

TECHNOLOGY DISTINCTIONS

- StemCells' search methodology has isolated the human neural stem cell and a population of human liver engrafting cells (Tissue-derived stem / progenitor cells are pre-programmed to form mature cells of the organ from which they are derived).
- Human neural stem cell transplants have been performed in approximately 2,000 animals without any tumors observed.
- Using human cells avoids issues associated with the use of animal cells (xenograft).
- StemCells' cells are not genetically modified, nor are they derived from cancer cell lines.

DEVELOPMENT PROGRAMS

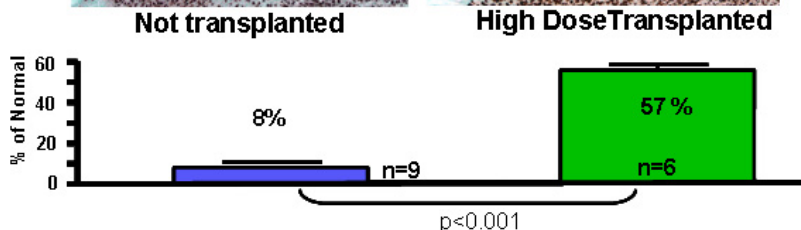
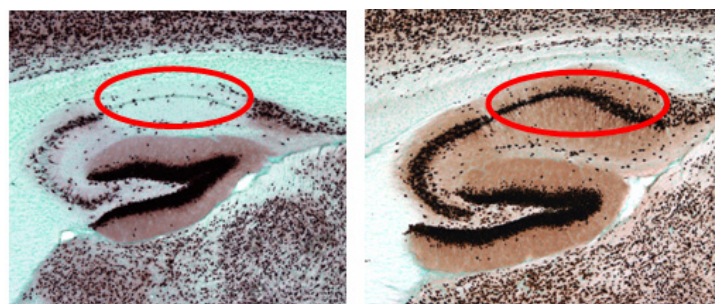
StemCells currently has development programs in two areas:

The **CNS Program** is in the clinical development stage of investigating therapies to treat a variety of disorders of the CNS. StemCells has isolated human central nervous system stem cells (HuCNS-SC) from brain tissue and has shown that these stem cells survive transplantation, migrate to different regions of the brain and become specialized cells normally found in that region. Promising preclinical data has been reported with the use of HuCNS-SC for the potential treatment of neuronal ceroid lipofuscinosis (NCL), retinal degeneration, spinal cord injury and other myelin disorders following a single stem cell transplant. We have completed a six patient Phase I clinical trial of our HuCNS-SC product candidate as a treatment for infantile and late infantile NCL, and we expect to report the results of that trial in mid-2009. In December 2008, we received authorization from the FDA to initiate a Phase I clinical trial of our HuCNS-SC cells for Pelizaeus-Merzbacher Disease (PMD), a rare myelination disorder of the brain. We expect to begin enrolling patients for this trial in 2009 and that the trial will take 12-18 months to complete.

The **Liver Program** seeks to identify and develop a cellular product to repopulate and repair liver that has been damaged or destroyed as a result of disease or injury. The Company has isolated a population of human liver engrafting cells (hLEC) that engraft in animal models and produce important human proteins that are missing or deficient in liver disease. These results suggest the hLEC show promise as a potential cellular therapy for a number of liver diseases. We plan to seek the necessary approvals to initiate a clinical study to evaluate hLEC as a potential cellular therapy, with the initial indication likely to be liver-based metabolic disorders.

NEURONAL CEROID LIPOFUSCINOSIS

Neuronal ceroid lipofuscinosis (NCL), Neuronal ceroid lipofuscinosis (NCL), which is often referred to as Batten disease, is a neurodegenerative disease that affects infants and young children. Two forms of NCL — infantile and late infantile— are caused by the deficiency of a lysosomal enzyme. Infantile and late infantile NCL are brought on by inherited genetic mutations in the CLN1 gene, which codes for palmitoyl-protein thioesterase 1 (PPT1) and in the CLN2 gene, which codes for tripeptidyl peptidase I (TPP-I), respectively. As a result of these mutations, the relevant enzyme is either defective or missing, leading to the accumulation of cellular waste product in various cell types. This accumulation eventually interferes with normal cellular and tissue function, and leads to seizures and progressive loss of motor skills, sight and mental capacity. Today, NCL is always fatal.



In January 2009, we completed a Phase I clinical trial to evaluate the safety and preliminary efficacy of HuCNS-SC as a treatment for infantile and late infantile NCL. We expect to report the trial results in mid-2009. We believe this was the first ever clinical trial to use a purified composition of human neural stem cells as a potential therapeutic agent in humans.

The images above illustrate the neuroprotective effect of stem cell transplantation in lysosomal storage disease

- *Left – Red oval: Surviving neurons in the brain of non-transplanted Infantile NCL mouse.*
- *Right – Red oval: Surviving neurons in the brain of HuCNS-SC transplanted Infantile NCL mouse.*
- *Graph below shows the percentage of surviving host neurons.*

COMPANY CONTACT

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