Heart failure—when the heart does not pump as much blood as the body needs—is one of the most devastating diagnoses a patient can receive. In fact, half of all patients die within five years of being diagnosed.

Muscle damage sustained during a heart attack causes 80 percent of the 550,000 new cases of heart failure each year. Currently, there is no way to repair this damage and restore heart function. In fact, if the damage is too severe, the only way to save a patient’s life is with a heart transplant.

What if you had a treatment that could induce the heart to repair itself and work properly again, without surgery? It could save of hundreds of thousands of lives and billions of dollars a year.

That kind of treatment is precisely what POSEIDON—ISCI’s most recent clinical trial—investigates.

The FDA approved trial examines whether mesenchymal stem cells—a kind of stem cell found in bone marrow—have the ability to heal the injured heart long after the damage has been done. If this experimental stem cell treatment succeeds, it could lead to therapies that would help patients with weakened heart muscle recover lost muscle and return to typical heart function.

Investigators Dr. Alan Heldman and Dr. Juan Pablo Zambrano (pictured from right to left) employ a minimally invasive technique that uses a special catheter to inject stem cells directly into a patient’s heart. This method allows cell delivery to the exact location of the damaged part of the heart without needing to perform a surgical procedure.

The POSEIDON trial has no placebo control group. Instead, it compares cells taken from a healthy donor to those taken from patients themselves.

The trial, which began in May, allows researchers to see whether the quality of the cells makes a difference in the outcome.
Dear Friends,

Welcome to the inaugural issue of Translation, the Interdisciplinary Stem Cell Institute’s quarterly newsletter.

ISCI, at the Miller School of Medicine, is engaged in cutting edge biomedical research in the new area of regenerative medicine. In addition, ISCI has a strong translational component, devoted to moving new discoveries from concept to clinic.

In this newsletter we bring you the latest developments and highlight some of ISCI’s key members and supporters.

Thank you for your interest and support.

Dr. Joshua Hare
Director, ISCI

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from the
BENCH AND BEDSIDE

The University of Miami’s Interdisciplinary Stem Cell Institute (ISCI) is devoted to curing a multitude of diseases. Congestive heart failure, non-healing skin wounds, lung disease, and breast cancer are among the many chronic, incurable diseases ISCI scientists study. In the future, ISCI will expand its research into new areas including Alzheimer’s, autism, and hearing loss. In each issue of Translation, we highlight some of the discoveries taking place in the different disciplines.

NEUROLOGY moving closer toward therapy for stroke

Stroke is the third leading cause of death and the leading cause of disability in the United States. For the first time, Dr. Dileep Yavagal has established a safe dose of stem cells for acute ischemic stroke in experimental models. The findings used mesenchymal stem cells, a type of adult stem cell, delivered via catheter, a minimally invasive means of administering the cells. The hope is that delivering stem cells during or after a stroke will minimize damage caused by stroke and speed recovery. Dr. Yavagal’s findings were recently presented in a platform session at the prestigious American Academy of Neurology meeting held in Toronto.

PEDIATRICS working to cure lung disease in newborns

In the neonatal intensive care unit, Dr. Karen Young treats premature babies affected by Bronchopulmonary dysplasia (BPD)—a chronic lung disease. In her lab, Dr. Young studies how stem cells might cure—even prevent—BPD, a disease which can have major consequences for the tiniest patients.

In a recent study, Dr. Young showed that the c-kit receptor, a part of a stem cell, is important for normal lung development. She believes that administering stem cells to newborns with defective c-kit receptors could prevent them from getting BPD. In another study with experimental models, Dr. Young showed that giving G-CSF—a medication that increases the body’s own stem cell production—resulted in dramatic improvements in the lungs. Dr. Young presented the findings at the May 2010 Pediatric Academic Society Meeting in Vancouver.

DERMATOLOGY helping to heal wounds that won’t

Chronic non-healing wounds—a painful medical problem that can lead to amputation—affects over 5 million people and costs an estimated 20 billion dollars annually. Dr. Van Badiavas is conducting a groundbreaking trial using bone marrow stem cells to treat this stubborn and serious medical condition. In his NIH funded, FDA approved clinical trial, Dr. Badiavas is using the patient’s own bone marrow to stimulate the wound’s healing capabilities, thereby saving the patient from serious consequences. Dr. Badiavas is in the planning stage of other trials to advance this very exciting development in skin disease.

Want to support ISCI’s mission, enroll in a clinical trial or learn more about our research? Log on to www.med.miami.edu/isci/ or call 305-243-9106
Despite a challenging funding environment, ISCI investigators received substantial grant awards from the National Institutes of Health and the State of Florida. Dr. Michael Kapiloff received $1.25 million from the NIH to support his ground-breaking work with cardiac cells. Dr. Joshua Hare received $1 million from the NIH to develop a new kind of cardiac stem cell that could potentially treat heart failure patients. The grant was part of a clinical translation initiative designed to help fast track the development of cells and test those cells in patients as quickly as possible. Dr. Hare and co-investigators Drs. Keith Webster, Omaida Velazquez and Dileep Yavagal were awarded a $500,000 shared instrument grant by the State of Florida to build a new cath lab that will be used in research. And Dr. Claudia Rodrigues received a $600,000 NIH grant to study ways in which stem cells adhere to damaged tissue to begin the healing process. Altogether, the new grants will double the annual amount of ISCI’s government funding.

**ANDY AND DIDI ADELSON** hosted a chic fundraiser at their Miami Beach home on May 17th. The event featured remarks by Dean Pascal J. Goldschmidt, Andy Adelson, and Dr. Josh Hare, ISCI director. Mr. Philip Cohen and his wife Suzi Rudd Cohen surprised the group by making a generous $100,000 donation to support research at ISCI. The event was part of a series organized by the ISCI Community Board: Andy Adelson, Philip Cohen, Peggy M. Hollander, Paul Tager Lehr, Miriam Lopez and H. Allan Shore.

Photos left to right. Top row: Andy Adelson; Philip Cohen. Center row: Dr. Joshua Hare, Pat Riley, Lady Blanka Rosenstiel and Dr. Alan Heldman; H. Allan Shore; UM Trustee Jon Batchelor and Nancy Batchelor; Didi Adelson. Bottom row: Eugenio Chinchilla, Dr. James Grichnik, UM Trustee Ronald Stone and Francisco C. Recio; Bob Diener and Suzi Rudd Cohen; Dean Pascal J. Goldschmidt and Peggy M. Hollander.
On May 14th, ISCI hosted its FOURTH ANNUAL SYMPOSIUM, gathering the country’s leading authorities on stem cell research to discuss the state of the science. Keynote speaker Dr. Gordon Keller gave an overview of his work on the linkage between how humans develop as embryos and the lessons learned for stem cells.

Photos from left to right. Top: Drs. Tan Ince, Krishna Komunduri, Ian McNiece, Karen Young, Joshua Hare and Gordon Keller. Bottom: Dr. Tan Ince presented work on breast cancer; Dr. Jeffrey Goldberg presents on the eye; Dr. Gordon Keller; Drs. Claudia Rodrigues and Samirah Gomes.

The next episode of Breakthrough Medicine will focus on clinical trials in dermatology and cardiology. The program will premiere on ABC (Channel 10) Friday, June 18 at 9:30 PM and be rebroadcast on Sunday, June 20 at 1:00 PM, Saturday, June 19 at 7:00 PM and Saturday, July 10 at 7:00 PM.

For more information or to view the show online, log on to www.uhealthsystem.com