



International Society for Heart & Lung Transplantation
www.isHLT.org

Media Contact: Stephen Chavez
Phone: +1 (210) 310-8215
E-mail: stephen.d.chavez@gmail.com

Cell Therapy and Tissue Engineering Hot Topic at 36th Annual International Society of Heart & Lung Transplantation Meeting and Scientific Sessions

Washington, D.C. (April, 27, 2016) – Today at the 36th Annual International Society for Heart and Lung Transplantation (ISHLT) Meeting & Scientific Sessions, researchers from Cedars-Sinai Heart Institute, Stanford University and the Texas Heart Institute in Houston presented information regarding progress in using cell therapy, including stem cells, to treat advanced heart and lung disease. Often the only realistic option for end stage disease is a heart and/or lung transplant. In the last decade, progress has been made in understanding how cell therapy could be used to repair damaged organs and also help transplants have more successful outcomes.

“As our community seeks to discover novel approaches to treatment of advanced heart and lung therapy, cell therapy shows significant potential to propel how we manage disease into the future,” said Andrew Fisher, FRCP, Ph.D., 2016 ISHLT Scientific Program Chair. “Today’s presentations remind us that further development and study is needed to help cell therapies realize their potential in heart and lung diseases.”

Cell Therapy for the Failing Organ: Patch up the Heart

Through the use of cardiac stem cells, Eduardo Marbán, MD, PhD, the director of Cedars-Sinai Heart Institute, has successfully re-grown healthy cardiac muscle in hearts damaged by a heart attack. After a heart attack, patients are left with a sizable scar on their heart. Because scar tissue does not contract, the heart’s pumping ability is lessened after a heart attack, which often reduces patients’ activity levels, quality of life and overall health. By replicating healthy cardiac stem cells and infusing the stem cells into a patient’s heart, the regenerative effect can reduce the size of the patient’s scar by 50 percent, according to a 2012 study. Marbán and his team continue to make progress with cardiac stem cells as a therapy for heart failure. His discoveries have led to 3 ongoing clinical trials testing cardiac stem cell therapy in patients with advanced heart disease and in patients with cardiomyopathy due to Duchenne muscular dystrophy.

Stem Cells to Cure the Incurable

Stanford University’s Sonja Schrepfer, MD, PhD, associate professor, Department of Surgery, Transplant and Stem Cell Immunobiology Lab, explained that Mesenchymal stromal cells (MSCs) have shown potential in preventing chronic heart and lung rejection after transplantation. These multipotent cells have immunomodulatory capabilities and have been shown to extend the survival of allogeneic grafts. Currently, there are multiple clinical trials underway to test MSCs for human treatments.

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Schrepfer continued that a recently identified rare pluripotent stem cell has the ability to help rebuild lung tissue after injury. She concluded that these cell therapies make them ideal for creative solutions to long-standing health concerns.

Tissue Engineering: Can We Build It

Doris Taylor from the Texas Heart Institute described the difference between cell therapy and tissue engineering. Cell therapy is an attempt to improve or restore normal function, whereas tissue engineering seeks a way to create whole, fully functional organs for future transplant. While advancements have been made in tissue engineering, Taylor shares that the most challenging aspect is providing the billions of cells needed to recellularize human-sized whole organs.

About ISHLT

The International Society for Heart and Lung Transplantation (ISHLT) is a not-for-profit professional organization with more than 2,700 members from over 45 countries dedicated to improving the care of patients with advanced heart or lung disease through transplantation, mechanical support and innovative therapies via research, education and advocacy. For more information, visit www.isHLT.org.

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