



About Us

Mount Sinai Performs First Second-Generation Cartilage Cell Transplant in the U.S.

Mount Sinai surgeon James Gladstone, MD, performed the nation's first implantation of Biocart II, a novel second-generation cartilage cell transplantation system.

NEW YORK, NY – March 5, 2009 /Press Release/ —

Cartilage cell transplantation, known as Autologous Cell Implantation (ACI), is a new technology used to replace damaged cartilage in the knee joint. The first implantation of Biocart II, a novel second generation cartilage cell transplantation system, was performed on February 18, 2009 by Dr. James Gladstone at The Mount Sinai Medical Center, as part of an FDA approved Phase II clinical trial. This was the first "second generation cartilage cell transplantation" performed in the United States.

Second generation ACI, utilizes a "scaffold" or biologic sponge as a means of delivering the cartilage cells to the defect in the knee joint. In the case of Biocart II the cells are grown in a special solution of growth factors that facilitates their growth and are then seeded into a proprietary biologic sponge that can be cut to size to fill the cartilage defect. The cells are better protected in this sponge and can immediately begin producing their matrix (the substance of articular cartilage).

The use of the seeded sponge provides a more uniform distribution of cartilage cells to fill the hole and, due to the sturdiness of the biologic sponge, rehab and weight bearing can be accelerated, causing less inconvenience to the patient, said James N. Gladstone, MD, co-chief of Sports Medicine at Mount Sinai School of Medicine and lead investigator of the study. "The fact that a covering patch does not need to be sutured to the surrounding healthy cartilage, as with first generation ACI, and the ease of shaping the sponge to fit the defect, greatly reduces the operative time."

Cartilage is the smooth white covering overlying the ends of the bone in any joint and it allows for smooth gliding of the bones on each other. It is able to withstand impact forces over long periods of time without wearing out as seen with marathon runners or basketball players. If the cartilage is damaged leaving a "pot hole" on the surface of the knee, the person can experience pain, swelling, locking and catching. If this damage is not treated it can extend over time, leading to bigger defects and more pain, and ultimately the possibility of arthritis.

About The Mount Sinai Medical Center

The Mount Sinai Medical Center encompasses The Mount Sinai Hospital and Mount Sinai School of Medicine. The Mount Sinai Hospital is one of the nation's oldest, largest and most-respected voluntary hospitals. Founded in 1852, Mount Sinai today is a 1,171-bed tertiary-care teaching facility that is internationally acclaimed for excellence in clinical care. Last year, nearly 50,000 people were treated at Mount Sinai as inpatients, and there were nearly 450,000 outpatient visits to the Medical Center.

Mount Sinai School of Medicine is internationally recognized as a leader in groundbreaking clinical and basic-science research, as well as having an innovative approach to medical education. With a faculty of more than 3,400 in 38 clinical and basic science departments and centers, Mount Sinai ranks among the top 20 medical schools in receipt of National Institute of Health (NIH) grants.