

Human Bone Marrow Cells Repair Mouse Islets

New York, NY, November 22, 2006 – Researchers have used cells from human bone marrow to repair damaged pancreatic beta cells in mice. The study offers hopes that these stem cells could be used to treat diabetes in humans. The stem cells also halted damage to the kidneys caused by diabetes.

The results are especially promising because the therapeutic effect was demonstrated with the use of human cells. Many approaches have shown beneficial effects in mice using mouse cells that were not reproduced subsequently in human trials.

“This is another example of the potential of cell-based approaches to alleviate diabetes,” said JDRF Executive Vice President for Research Richard Insel, M.D. “In addition to using the bone marrow cells themselves, we might be able to develop drugs that have the same effects, if we can understand the mechanisms through which the cells are acting on the islets.”

The study, conducted in the laboratory of Darwin Prockop M.D., Ph.D., at the Tulane University Health Sciences Center, is published in the *Proceedings of the National Academy of Sciences*.

The researchers injected human multipotent stromal cells, known as mesenchymal stem cells, into diabetic mice that had high blood sugar. After three weeks, a group that received injections of the human stem cells were producing higher levels of mouse insulin than untreated mice and had lower blood sugar. The injections also appeared to halt damage occurring in the kidneys, although it was unclear whether the kidneys were benefiting directly from the stem cells or because blood sugar had dropped.

JDRF has funded and continues to fund similar research using bone-marrow-derived cells to repair pancreatic damage and reverse diabetes. The concept of using non-islet cells to preserve or repair beta cell damage has reached the clinic. Currently, a JDRF human trial organized by researchers at the University of Florida is testing whether umbilical cord blood cells can spur pancreatic repair and possibly even beta cell regeneration in new-onset type 1 diabetes patients. *The patients receive infusions of their own cord blood, which was stored at birth.*