Media	Reuters http://www.reuters.com/article/healthNews/idUSN25390672007052 6?feedType=RSS&pageNumber=1
Section	Health
Date	26 May 2007

Umbilical cord cells could produce insulin: study

WASHINGTON (Reuters) - Stem cells taken from the umbilical cords of newborns can be engineered to produce insulin and may someday be used to treat diabetes, U.S. and British researchers reported on Friday.

They said they were able to first grow large numbers of the stem cells and then direct them to resemble the insulin-producing cells of the pancreas that are damaged in diabetes.

"This discovery tells us that we have the potential to produce insulin from adult stem cells to help people with diabetes," said Dr. Randall Urban of the University of Texas Medical Branch at Galveston, who directed the study.

"It doesn't prove that we're going to be able to do this in people -- it's just the first step up the rung of the ladder," Urban added in a statement.

Writing in the journal Cell Proliferation, the researchers, who included a team at Britain's University of Newcastle, said they hope to eventually produce an alternative to using controversial embryonic stem cells.

In the United States, Congress has been fighting over whether to increase federal funding of embryonic stem cell research, with opponents saying it is wrong to experiment on human embryos and supporters saying the work is needed to transform many fields of medicine.

Most of the science aims to create a new field of regenerative medicine in which stem cells from a patient's blood are grown and tweaked in the laboratory and used to replace defective or damaged blood or tissue.

TRANSFORMING ORDINARY CELLS

Other researchers are trying to learn how embryonic stem cells give rise to all the tissues and parts of the body, while remaining virtually immortal themselves, in the hope of eventually coaxing perhaps an ordinary skin cell to do the same.

The researchers in Texas and Newcastle used human umbilical cord blood because it is an especially rich source of fresh "adult" stem cells.

One big hope is to create new pancreatic tissue for people with diabetes. In type-1 diabetes, the body no longer produces insulin because those cells have been destroyed.

Stem cell expert Dr. Rudolf Jaenisch, of the Whitehead Institute in Cambridge, Massachusetts, said he was skeptical about the research.

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"In the past, these claims have been rather unconvincing," Jaenisch said in a telephone interview.

He said people who have tried to make insulin-producing adult stem cells before have produced very small amounts of insulin, or have even been mistaken.

Larry Denner of the University of Texas, who worked on the study, said his team had addressed this issue because the cells also produced a compound called C-peptide, which is not found in the culture medium -- the broth used to nourish cells in the lab.

"It is a part of the insulin precursor protein and is only present when cells produce insulin. So the state-of-the-art criteria for insulin production is the demonstration of the presence of C-peptide," Denner said in an e-mail.

Last week, Geron Corp. said it had transformed human embryonic stem cells into the pancreatic cells that produce insulin.