Health & Medicine

Hope for New Life in Diabetic Pancreas Cells

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David Mack / Science Source Images

Scientists thought they knew the cause of type 2 diabetes. First, the body becomes resistant to insulin, a hormone that transports blood sugar to cells that need the energy. Then, insulin-producing cells in the pancreas, like the one pictured at right, strain to meet the need and die prematurely.

A new study by Columbia medical researchers Domenico Accili and Chutima Talchai suggests that the disease progresses in a different way. In experiments on mice, the researchers have shown that worn-down pancreas cells do not typically die but instead regress to an earlier stage of their development, when they were undifferentiated “progenitor” cells not yet capable of functioning in an adult body.

This appears to solve a mystery that had emerged in recent years. “When you look at a diabetic pancreas, you find very few, if any, dead beta cells, which are the ones that make insulin,” says Accili, a professor of medicine, whose paper appeared in the September 14 issue of the journal *Cell*. “So the organ dysfunction is out of proportion with the number of dead cells. Nobody has had a plausible explanation for this.”

The discovery is exciting, Accili says, because it suggests the possibility that pancreas cells that have regressed might be coaxed back into maturity, thus regaining their ability to produce insulin. Currently, type 2 diabetes is treated with drugs that try to extend pancreas cells’ insulin-producing life for as long as possible.

“That’s like flogging a dying horse,” says Accili. “You can push these cells only so far.”

Although it is too soon to know if his efforts will succeed, Accili is now searching for drugs that might reverse the degeneration process.

“It’s a pretty new idea,” Alan Saltiel, a diabetes expert at the University of Michigan, told the *New York Times* recently, and it “offers a lot of hope.”

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