# Can More Stem Cells Lead to T1 Regenerative Therapy?

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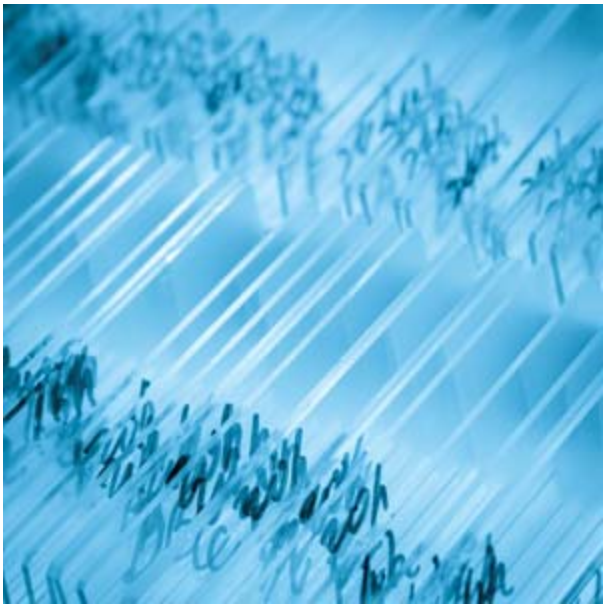

*Update – 2/21/14 –* The Wall Street Journal *is reporting that many labs are having trouble replicating the results reported below, and the RIKEN Center is investigating for testing irregularities. We will keep you posted. – Insulin Nation*

Scientists long have been entranced by the power of embryonic stem cells to grow all the organs the body needs. Harnessing the power of stem cells, in theory, could allow scientists to devise therapies to either replace or repair failing organs, including pancreases.

But until recently, there hasn't been a reliable and affordable way to grow the stem cells needed to make such therapy a truly viable option. Human embryonic stem cells can only be gathered from the destruction of human embryos, a process that leaves those who oppose abortions uneasy. More recently, scientists at the RIKEN Center for Developmental Biology in Japan announced in 2007 that they were able to manipulate the genes of adult skin and blood cells to make those cells revert to stem cells, but such a method still is seen as expensive and imprecise.

But now scientists at the RIKEN Center have announced the discovery of a new and better way to grow stem cells from mature blood cells. They found that if they bathed a blood cell in a mild acid for 30 minutes it would react to that stress by reverting back to a stem cell within a few days. When injected in a mouse embryo, the grown stem cells can grow all the organs needed for the mouse, according to a report on NPR.

Such a discovery has regenerative research scientists celebrating, as it has the potential to greatly streamline the process of stem cell research. Greater stem cell access could hasten the work of scientists to develop effective regenerative cell therapy for many conditions, including Type 1 diabetes. Dr. Juan Dominguez-Bendala, director of the Pancreatic Development & Stem Cell Laboratory at the Diabetes Research Institute, says that such a development could advance the

regenerative arm of cutting-edge diabetes treatments if combined with effective immunotherapies.

“This study was done in mice and needs to be validated using human cells, but, if confirmed, it could tremendously simplify the procurement of embryonic-like cells from the very patients we intend to treat,” Dr. Dominguez-Bendala says in an email interview.

While this method of growing stem cells is novel, the concept behind it, that of inducing cells to stress to unlock their restorative properties, is not. In fact, it’s as old as the discovery of insulin, when Dr. Frederick Banting and Dr. Charles Best injured pancreases to encourage new beta cell growth, says Dr. Claresa Levetan, Chief Science Officer at Perle Biosciences.

“We have known about this for decades and this is the basis of the work at Perle,” Dr. Levetan says in an email interview. “All the stem cells we need are in the pancreas; we don’t need embryonic stem cells.”

We’ll have to wait and see whether easy-to-grow stem cells will be a gamechanger for diabetes therapy, as the researchers who developed the new technique caution that they have only found a way to grow new stem cells for baby mice. Much more testing will be needed to see if the same technique works in adult mice before we can even begin to test it in human subjects.

**About the Author**

Craig Idlebrook Craig Idlebrook is managing editor for Insulin Nation and Type 2 Nation. He's written about health policy, environmental health, community health, and maternal health for over 25 publications. When not at work, he can be found wrapped around his daughter's little finger. You can reach him at cidlebrook@epscomm.com.