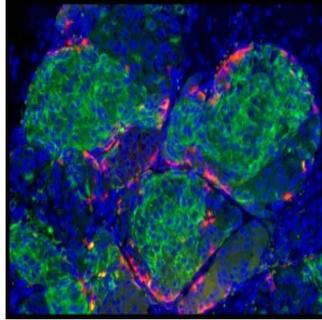


Insulin-Control Cells Produced in Laboratory



A team at Harvard University has used stem cells to produce hundreds of millions of cells in the laboratory that control blood sugar levels. These are the beta cells in the pancreas that pump out insulin to control blood sugar levels. In people suffering from Type 1 Diabetes, the immune system starts to destroy these cells, leaving them unable to regulate their blood sugar levels. Diabetes affects 347 million people worldwide and has the potential to injure hearts, eyes, kidneys, the nervous system and other tissues.

The team, led by Prof. Doug Melton, is attempting to replace 150 million beta cells using stem cell technology. Dr. Melton has found a way to transform embryonic stem cells into functioning beta cells. Dr. Melton points out that this procedure has taken years of research and has finally been able to produce beta cells by using a 30-day, six-step recipe.

The procedure has been tested on mice with Type 1 Diabetes and its findings have been published in the journal *Cell*. The study was funded by JDRF. The tests show that the lab-made cells could produce insulin and control blood sugar levels for several months.

According to Dr. Melton, "It was gratifying to know that we could do something that we always thought was possible. We are now just one pre-clinical step away from the finish line."

While more research is still needed before this could become a cure for Type 1 Diabetes, it is still a big step forward. The long term goal would be to not only replace the cells that produce insulin but to also turn off the immune response that causes Type 1 Diabetes.

According to Prof. Chris Mason, a stem cell scientist at University College London, this research is a potentially major medical breakthrough and if this technology can work in both clinical and manufacturing facilities, its impact on the treatment of diabetes could be a medical game-changer and could be at par with antibiotics and bacterial infections.

Similar sentiments have been expressed by Dr. Gillian Morrison from the University of Edinburgh. He believes that this represents a real advance in the field but the next important step would be to determine ways in which these cells could be maintained inside the body so that they are protected from the immune response and can have long-term function.

Source: BBC Health

Image Credit: Harvard Magazine

Published on : Tue, 14 Oct 2014