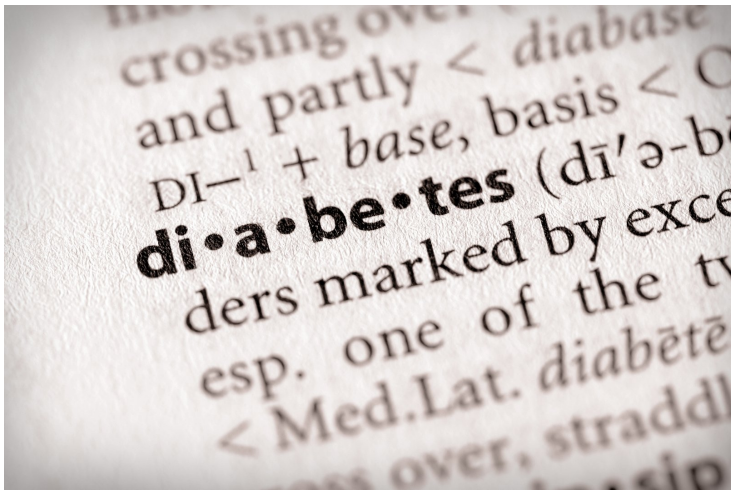
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Stem cell study reveals potential diabetes cure

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Singapore: A research conducted by Australian scientists on stem cells has shown that patients suffering from type 1 diabetes have the ability to make their own insulin thus erasing the need for regular injections. The research, which was published in November issue in the peer-reviewed scientific journal, PLOS ONE, said that "Thus, there is a strong imperative to derive renewable sources of insulin-producing cells to 'cure' T1D."

The study that was conducted by Dr Ilia Banakh and Professor Len Harrison from the Walter and Eliza Hall Institute in Melbourne, revealed that the scientists had not only devised a way to identify and isolate stem cells from the adult pancreas, but also developed a technique to essentially "switch them on", thus encouraging them to become insulin-producing cells able to release insulin in response to glucose levels. The study was funded by the Juvenile Diabetes Research Foundation and the National Health and Medical Research Council of Australia.

In type 1 diabetes, the body's immune system kills off the pancreas's insulin-producing cells, resulting in elevated and uncontrolled glucose levels which have to be managed by injections of synthetic insulin. However, insulin-analog treatment rarely achieves the best results, and while pancreas transplants in most cases restore insulin production to near-perfect levels, the process is both costly and risky.

Although cells with properties similar to stem cells have already been discovered, this new research is even more positive, according to Dr Harrison, because it could help unlock the secrets of insulin production and ultimately help people with diabetes end their dependence on insulin injections. As part of the study, Banakh and Harrison led a team that first isolated stem cells in test tubes and encouraged them to produce insulin, and then injected them into mice, where the cells maintained the ability to produce insulin.

"What Dr Banakh has done is pinpoint the cell of origin of the insulin-producing cells and shown that the number of these cells and their ability to turn into insulin-producing cells increases in response to pancreas injury. This is exciting, because it means that the potential to regenerate insulin-producing cells is there in all of us, even as adults," Professor Harrison said in a report that accompanied the study.