

## A cure for diabetes could just be skin-deep: UCSF, Gladstone Institutes scientists grow healthy beta cells

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Collaborating with researchers from the Gladstone Institutes <sup>[1]</sup> in San Francisco, Matthias Hebrok, PhD <sup>[2]</sup>, director of the Diabetes Center at UC San Francisco, co-authored a groundbreaking study this week on reprogramming skin cells into insulin-producing pancreas cells – a major step toward finding a cure for type 1 diabetes <sup>[3]</sup>. The team's findings were published online today in the journal *Cell Stem Cell* <sup>[4]</sup>.

"I am particularly excited about the prospect of translating these findings to the human system," Hebrok, one of the study's authors, said.

Type 1 diabetes -- caused by the destruction of beta cells <sup>[5]</sup>, which reside in the pancreas and produce the hormone insulin -- can be managed with regular glucose monitoring and insulin injections; however, a more permanent solution would be to replace the missing beta cells.

For the researchers' findings, they collected skin cells from mice and transformed them into endoderm-like cells -- the type found in an early embryo. Scientists then transformed the endoderm-like cells into pancreas-like cells, which were then transplanted into mice that had high-glucose levels, an indicator to diabetes.

After testing the mice for several weeks post-transplant, the pancreas-like cells had given rise to functional, insulin-secreting beta-like-cells.

"This technology could significantly advance our understanding of how inherent defects in beta cells result in diabetes, bringing us closer to a much-needed cure," Hebrok added.

For more information, visit [http://www.cell.com/cell-stem-cell/abstract/S1934-5909\(14\)00007-1](http://www.cell.com/cell-stem-cell/abstract/S1934-5909(14)00007-1) [4] or <http://www.ucsf.edu/news/2014/02/111646/scientists-reprogram-skin-cells-insulin-producing-pancreas-cells> [6].

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## About the Diabetes Center at UC San Francisco

In the Diabetes Center at UCSF, leading experts in diabetes research, patient care, and patient education work as one cohesive team to improve the quality of life of those living with the disease and to ultimately discover a cure.

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**Source URL:** <https://diabetes.ucsf.edu/news/cure-diabetes-could-just-be-skin-deep-ucsf-gladstone-institutes-scientists-grow-healthy-beta>

### Links

[1] <http://gladstoneinstitutes.org/>

[2] <https://diabetes.ucsf.edu/content/matthias-hebrok-phd>

[3] <http://dtc.ucsf.edu/types-of-diabetes/type1/>

[4] [http://www.cell.com/cell-stem-cell/abstract/S1934-5909\(14\)00007-1](http://www.cell.com/cell-stem-cell/abstract/S1934-5909(14)00007-1)

[5] <http://dtc.ucsf.edu/types-of-diabetes/type1/understanding-type-1-diabetes/how-the-body-processes-sugar/controlling-blood-sugar/>

[6] <http://www.ucsf.edu/news/2014/02/111646/scientists-reprogram-skin-cells-insulin-producing-pancreas-cells>