

New hormone stimulates pancreatic β -cell proliferation



Diabetes affects more than 360 million people worldwide and its prevalence is increasing, with 552 million diabetics predicted worldwide by 2030. Scientists recently discovered a hormone that could improve future diabetes management by stimulating replenishment of insulin-producing β cells in the pancreas.

The hormone, which has been named betatrophin, was discovered in studies of a mouse model of severe insulin resistance in which chemical blockade of insulin receptors induced pancreatic β -cell proliferation. Betatrophin was identified in murine liver and fat, and its stimulatory effect on cellular replication was limited to β cells. Its expression was also reported in human liver tissue.

Betatrophin treatment of mice increased proliferation of pancreatic β -cells by an average of 17-fold within

a few days, causing an expansion of β -cell mass and increased insulin concentrations in the pancreas.

Betatrophin's discovery "is a very exciting new development, and is only the beginning of the story", says C Ronald Kahn (Joslin Diabetes Center, Boston, MA, USA). He adds that unanswered questions include whether "action on islets is direct or indirect. We don't know how betatrophin works; is it only one growth factor or one of many? There is a lot of future work to be done".

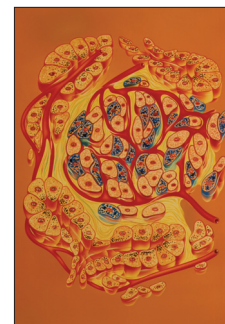
Senior author Douglas Melton (Harvard University, Cambridge, MA, USA) said: "It's not often that one finds a new hormone, so it opens up all kinds of possibilities for new treatments".

The most immediate application for betatrophin is for the "millions of prediabetics who are on their

way to getting type 2 diabetes. If these individuals still have β cells, this hormone could give them more β cells and alleviate the need for insulin injections", Melton continued. Betatrophin may also prove beneficial in type 1 diabetes, which is initiated by an autoimmune process. "If the disease is just starting, one could give an immunosuppressant and this hormone to forestall the onset of type 1 diabetes."

Melton cautions that results from human studies should not be expected quickly. "We are currently working with our collaborators Evotec and Janssen to make the human betatrophin protein. This will take more than a year." Results from studies in humans might be available "2-3 years from now, if all goes well".

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