

Vaccine to Reverse Diabetes

Published date: Feb. 1, 2012

Technology description

Summary

Investigators at the University of Pittsburgh have developed a vaccine to reverse or prevent the destruction of insulin producing pancreatic cells.

Description

This vaccine stops T cells from attacking the pancreatic islet cells by reprogramming dendritic cells that trigger the T cell assault. Dendritic cells activate the T cell attack through surface molecules called CD40, CD80, and CD86. The vaccine utilizes microspheres that deliver antisense oligonucleotides to dendritic cells in the pancreas which keep the CD40, CD80 and CD86 molecules from being expressed. Vaccine studies have been completed in both mouse and primate models. Phase I clinical trials are underway for a cell therapy version of this vaccine.

Background

Diabetes is a chronic disease with elevated and fluctuating levels of glucose in the blood. Approximately 23.6 million Americans have diabetes which conventionally is diagnosed as type 1 or type 2 diabetes. Type 1 diabetes is caused by an autoimmune attack on the patient's own insulin producing beta cells. About 5 to 10 percent of the diabetic population has type 1 diabetes. Type 2 diabetes is characterized by decreased insulin sensitivity, and approximately 10 percent of all type 2 diabetes patients suffer from an autoimmune attack towards their beta cells and are characterized as having Latent Autoimmune Diabetes in Adults (LADA). The autoimmune destruction of the insulin producing cells in type 1 diabetic and LADA patients results in an insulin deficiency which needs to be treated with insulin therapy for life.

Institution

[University of Pittsburgh](#)

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com