

# JDRF Research in the News

April 2012

Cure

## JDRF Cure Research

*Halting the autoimmune process  
and restoring normal insulin production.*

### JDRF Immune Therapy Research

[Engineered Gut Bacteria Reverse T1D in Mice](#) - Genetic Engineering & Biotechnology News  
JDRF supported scientists have managed to reverse T1D in experimental mice by giving the animals an oral course of harmless gut bacteria that had been engineered to secrete the proinsulin autoantigen and the immune modulatory human cytokine IL-10. An international team led by scientists at the KU Leuven in Belgium, combined the engineered bacteria therapy with a short, low-dose systemic course of the nonspecific immune modulating monoclonal antibody anti-CD3. Treated diabetic mice demonstrated stable blood sugar levels for over three months and suppression of diabetes-related autoantigen immune responses. There was no evidence that the therapy triggered beta-cell proliferation. Rather, it seemed to enable reactivation of beta cells that had been deactivated by diabetes-related immune inflammation. This suggests that the treatment may only work when there are enough potentially functional beta cells present to start with. For more information, also see [JDRF's news blog](#).

### [EpiVax awarded \\$1.5M NIH grant](#) – Mass High Tech

EpiVax Inc. was awarded a \$1.5 million Small Business Innovation Research (SBIR) grant from the National Institutes of Health. The Providence, R.I.-based company received the award from the NIH's National Institute of Diabetes and Digestive and Kidney Disease (NIDDK) to research formulation, dose and the form of delivery for Tregitope. The first target for Tregitope therapy will be T1D. Islet replacement therapy is still in the experimental stage for individuals with advanced disease, but EpiVax believes that Tregitope therapy will facilitate this novel treatment for individuals in the later stages of T1D. Furthermore, Tregitope may be useful for inducing tolerance to transplanted islet cells, and thus could bring the benefits of transplantation to a broader range of patients than previously anticipated. Developing more specific therapies to promote tolerance to the beta cell antigens that trigger the autoimmune response is a critical component of a comprehensive therapeutic approach to T1D. Previous JDRF funding to EpiVax helped the company conduct preliminary testing that supported the new NIH funding. EpiVax's therapy may have the potential to reduce the harmful immune responses to the insulin-producing beta cells, thereby preserving the body's ability to make its own insulin. This announcement is an example of how JDRF funding of companies can allow them to secure other funding sources for T1D research.

## **JDRF Beta Cell Regeneration Research**

[Daiichi Sankyo, NGM Partner on Beta-Cell Regenerating Diabetes Therapeutics](#) - Genetic Engineering & Biotechnology News

Daiichi Sankyo and NGM Biopharmaceuticals established a research collaboration and license agreement to develop therapeutics that modulate beta-cell regeneration, for the potential treatment of T1D. NGM will use its discovery technology and in vivo screening platform to identify and validate metabolic targets that modulate beta-cell growth and function. The two firms will then jointly work to validate targets and identify and optimize drug candidates. Daiichi Sankyo will have responsibility for preclinical studies, clinical development, manufacturing, and commercialization of products worldwide, and retains a global license to all products developed through the collaboration. JDRF is also collaborating with NGM to discover biologic targets and drugs for beta cell regeneration in T1D. This is an example of how JDRF funding of companies can allow them to attract the support of larger pharmaceutical companies with the resources to continue critical T1D research projects. For more information, also see [JDRF's new blog](#).

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**Treat**

### **JDRF Treat Research**

*Developing new devices and therapies that optimize blood sugar control and treat or prevent T1D complications.*

[Diabetes Research](#) - Mississippi Public Broadcasting

Listen to a radio interview with JDRF's Dr. Sanjoy Dutta, as he talks about exciting aspects of the JDRF research program.

## **JDRF Artificial Pancreas Project Research**

[Breakthrough Research for T1D](#) - WTNH.com, New Haven, CT

High tech has paved the way to a breakthrough chapter in the fight against T1D. "What you will see is the development of pumps and sensors integrated into one device," said Dr. Stuart Weinzimer at Yale School of Medicine. Dr. Weinzimer is the principal investigator of an artificial pancreas study at Yale University. Many people consider an artificial pancreas as the bridge to a cure because the artificial pancreas will help people with T1D really manage to keep tight control of their blood sugars while we're finding a cure. It will also remove many of the routine burdens of managing this disease. JDRF and the National Institutes of Health are funding the work to advance the development of an artificial pancreas in the U.S.

### [A Look at the Artificial Pancreas Project](#) - Joslin Diabetes Blog

Every once in a while it's a good thing to stand back, take a look at where you have been and gather your strength to go forward. So today we are going to review what is happening with the JDRF Artificial Pancreas Project. Started in 2005 as a research project, it has become a high stakes partnership between industry and science to develop a runner-up to a cure. The Artificial Pancreas Project aims to develop a machine that combines the insulin delivery accuracy of an insulin pump with the blood glucose detection capabilities of a continuous monitoring device in a closed loop system that has a rudimentary brain. In this type of setup the two devices talk to each other and, using software to determine how much insulin to automatically deliver into your system. Presto! You, the middle man, are taken out of the equation (which is the way most of us would like it). After all, in people without diabetes all of those minute calculations take place behind the scenes and happen quite well without mindful input. Having a closed loop system would help those with T1D lower the ever-present, everyday diabetes stress.

### [Youngster Participating in Artificial Pancreas Research](#) - Press Republican

Connor Sargeant may hold the key to a major breakthrough in how diabetics control their blood-sugar levels. The 12-year-old junior-high student from Peru will soon participate in a controlled study to analyze the effectiveness of an automatic glucose monitoring and insulin delivery system called an artificial pancreas. In 2005, JDRF launched the Artificial Pancreas Project to support research on such a system. There is a growing number of clinical studies in which people with T1D can participate.

### [JDRF & Dexcom Collaborate on Smart Transmitter Technology](#) - Reuters

JDRF, the leading global organization focused on T1D research, announced today that it has partnered with Dexcom, a medical device company focused on developing and marketing continuous glucose monitoring (CGM) systems. The goal of the partnership is to accelerate the development of a novel wireless "smart transmitter" that would allow a CGM system to communicate directly with an artificial pancreas control device currently being used for research studies, instead of only with a CGM receiver. Dexcom will complete the development, testing, and manufacturing of a custom "smart transmitter" prototype, which will be used for studies within JDRF's Artificial Pancreas Project academic research consortium. For additional information, see [JDRF's press release](#)

## **JDRF Diabetic Eye Disease Research**

### [JDRF and iCo Therapeutics Support Trial for Diabetic Eye Disease](#) - PhysOrg.com

iCo Therapeutics, a pharmaceutical company and JDRF have joined forces to investigate a potential new treatment for one of the most common complications of diabetes, diabetic macular edema (DME), one form of eye disease. The iDEAL study is a Phase II clinical trial designed to evaluate whether the drug iCo-007 is effective in improving visual acuity in people with DME. The multicenter clinical trial is being coordinated at Johns Hopkins University. It is led by Quan Dong Nguyen, MD, MSc, associate professor of ophthalmology at the Wilmer Eye Institute of the Johns Hopkins University School of Medicine. As many as 208 patients with DME will be studied at up to 30 clinical sites across the United States, including the Wilmer Eye Institute of the Johns Hopkins University School of Medicine. For additional information, see [JDRF's press release](#).

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**Prevent**

## **JDRF Prevent Research**

*Preventing the autoimmune process from starting or stopping it before the onset of insulin dependence.*

### [Work Starts on New Therapy to Prevent T1D](#) - Health Canal

JDRF supported scientists at King's College London have launched a project to develop a new therapy for T1D. It is hoped the therapy will control the autoimmune responses that underlie the inflammation that leads to diabetes and prevent it from developing. The project at King's College London, as part of King's Health Partners Academic Health Sciences Centre, is the culmination of drug discovery efforts in the Department of Immunobiology. The team will develop a drug called MultiPepT1De, made from a 'cocktail' of peptides, in a strategy known as peptide immunotherapy. Professor Peakman from King's College London said: 'MultiPepT1De has some important advantages over current approaches to the prevention of T1D, especially its ability to avoid global immune suppression which is a problem with several other approaches under consideration. The project is expected to complete in 2014, with early clinical trials to follow.'

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