

Research Progress Report

Therapeutic Area: Immune Therapies Key Advances Spring 2010

Thanks to the generous support you and other donors have given, JDRF's Immune Therapies research program has made significant advances in recent months. This therapeutic area aims to stop the immune system response that causes type 1 diabetes and is committed to delivering immune therapies to people at all stages of type 1 diabetes – in order to prevent the disease, delay the need to take insulin, or slow the disease's progression. Once researchers determine how to address autoimmunity, a beta cell therapy could be used to replace or regenerate beta cells, enabling a person to resume producing his or her own insulin. We rely on supporters like you to help move this work along as rapidly as possible. Below are highlights of the recent accomplishments you have helped make happen.

Phase II Study Reveals Long-Term Benefits Of Anti-CD3 Antibody Treatment

A JDRF-supported clinical trial in Brussels, Belgium, has found that a six-day treatment with anti-CD3 antibodies can slow the normal rise in insulin use in the first few years after a diagnosis of type 1 diabetes. This shows that the treatment, although brief in duration, was able to preserve the function of insulin-producing cells for several years – a major step toward stopping or slowing the disease's progression. The study participants, all recently diagnosed with type 1 diabetes, received either the antibody treatment or a placebo and were monitored over a four-year period. In contrast to what happened in those given the placebo, insulin requirements in the anti-CD3-treated participants remained steady over the first 24 months and only later began to increase. People who saw this improvement were younger at the time of diagnosis and had greater initial beta cell function – indicating the potential benefits of early intervention. Anti-CD3 antibody research has been driven forward by JDRF and continues to be among the most promising treatments for people recently diagnosed with type 1 diabetes.

What this may mean for people with type 1 diabetes: Anti-CD3 antibodies, now with their proven ability to slow the progression of type 1 diabetes for an extended period, thus remain an important potential treatment for the newly diagnosed. Clinical trials of immune therapies like anti-CD3 also add to the body of knowledge about type 1 diabetes – helping scientists better understand the disease and therefore develop the best possible therapies for people at all of the stages of type 1 diabetes: the at-risk, the newly diagnosed, and those who have had type 1 for years.

An Oral Vaccine Using “Yeast Shells”

JDRF-funded researchers are developing an oral vaccine to control the autoimmune response that causes type 1 diabetes. The unique approach is being pioneered by the University of Massachusetts Medical School. Researchers there, led by Dr. Michael Czech, are using hollow “yeast shells” derived from baker's yeast to carry proteins and other agents that alter the behavior of immune cells in the stomach. If effective, the vaccine will retrain the immune system to tolerate the insulin-producing beta cells that are mistakenly targeted and destroyed in type 1 diabetes. □

What this may mean for people with type 1 diabetes: Dr. Czech's research is an important example of the innovative, clinically directed research taking place within JDRF's Immune Therapies program. The novel strategy has the potential to address the root causes of type 1 diabetes and thus holds the promise of benefiting type 1's at all stages of the disease.

To stay up-to-date on the latest JDRF-funded advances, please visit www.jdrf.org.