

Genetic studies lead to clinical trial of new treatment for type 1 diabetes

June 11 2013



Credit: Heather Aitken from Flickr

(Medical Xpress)—A clinical trial is underway for a potential new treatment for type 1 diabetes that could eventually mean patients are able to reduce insulin treatment from several times a day to only once or twice a week. The new treatment is a direct result of research to understand the genetics of the disease.

Type 1 diabetes is the most common severe [chronic autoimmune disease](#) worldwide and the incidence of the disease is rising rapidly. It causes the [immune system](#) to mistake cells in the [pancreas](#) as harmful and attack them. When these cells are damaged the pancreas is unable to produce

insulin, which plays an essential role in transferring [glucose](#) out of the [bloodstream](#) and into cells to be converted into energy. The management of type 1 diabetes usually involves measuring the amount of glucose in the blood and injecting artificial insulin to make up for the insulin the pancreas is not producing.

Type 1 diabetes is known to be a genetically complex disease – there is no single gene that causes the disease, but rather dozens of genes that increase the risk of developing the disease. However, [genetic studies](#) have identified variants of one particular gene – known as interleukin-2, or IL2 – which appears to play a prominent role. IL-2 is important in helping regulate the immune system.

Now, for the first time, researchers at Addenbrooke's Hospital and the Wellcome Trust funded Cambridge Institute for Medical Research (CIMR) at the University of Cambridge are investigating whether interleukin-2 in the form of a drug called aldesleukin (Proleukin) could be used to halt the damage to the pancreas in people with newly diagnosed type 1 diabetes and, if so, what dose of the drug is required for the best results.

Professor John Todd, FRS from the JDRF/Wellcome Trust Diabetes and Inflammation Laboratory, University of Cambridge says: "Studying the genetics of type 1 diabetes has proved essential to help us understand what is happening in the disease at a cellular and molecular level. This type of research takes time, but we are now beginning to test its true potential for improving the lives of patients in our innovative translational medicine programme."

The clinical trial is being led by Dr Frank Waldron-Lynch from the University of Cambridge and is coordinated by the Cambridge [Clinical Trials](#) Unit at Addenbrooke's Hospital. Dr Waldron-Lynch adds: "Type 1 diabetes is a potentially very serious disease that requires lifelong

treatment and regular [insulin injections](#) throughout the day. Our aim is to use aldesleukin to rebalance the immune system so that patients can significantly reduce the number of insulin injections needed to just once or twice a week by slowing the progression of the disease."

The first two participants have been enrolled onto the trial and have received treatment. At the moment, the trial is to help gauge the necessary dose in adults, beginning with very low doses; ultimately, the researchers hope to be able to use this treatment in children.

Dr Waldron-Lynch says that so far the results have been very positive, even on a very low dose, with no detectable side effects. However, they are looking to recruit more participants to the "aDaptive study of IL-2 dose on regulatory T cells in type 1 Diabetes" (DILT1D) to help them determine with confidence whether the drug is effective and at what dose.

The trial is being funded by the Wellcome Trust and JDRF, the type 1 diabetes charity, combined with funding from the National Institute of Health Research (NIHR), a UK government body that coordinates and funds research for the National Health Service.

Dr Michael Dunn, Head of Molecular and Physiological Sciences at the Wellcome Trust, says: "We have invested heavily in genetics over the past few decades to understand the biological causes of diseases. At the same time as showing us how complex diseases are, it has also provided tantalising clues as to how they may be treated. This is the first time that 'immunotherapy'— in other words, trying to rebalance the immune system — has been trialled in the UK as a way of tackling type 1 diabetes and it would not have been possible without the strong foundation of genetics and immunology research that underpins it."

Karen Addington, Chief Executive of JDRF, said: "Across the UK,

hundreds of thousands of people with [type 1 diabetes](#) suffer the disruption of insulin injections several times every day. These injections interrupt their work, their play, their time with family and sometimes their sleep. We must continue to support crucial research such as this which focuses on better treatment for those living with the condition."

Professor Gillian Griffiths, FRS, Director of the CIMR at the University of Cambridge says: "I am delighted that the [Diabetes](#) and Inflammation Laboratory are rolling out this important translational medicine programme based on the cutting-edge basic biomedical research which they have carried out within the Cambridge Institute for Medical Research"

More information: www.clinical-trials-type1-diabetes.com/

Provided by University of Cambridge

Citation: Genetic studies lead to clinical trial of new treatment for type 1 diabetes (2013, June 11) retrieved 27 April 2024 from <https://medicalxpress.com/news/2013-06-genetic-clinical-trial-treatment-diabetes.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--