Daniel Moore, MD, Ph.D. Updates

Update as of 11/22/17:

We would like to thank the Diabetes Research Connection and all of our supporters for lifting up our project on immune regulatory cells in Type 1 diabetes. As you are likely aware, the presence of autoantibodies is the first sign of Type 1 diabetes and are evident in nearly everyone with new onset Type 1 diabetes. It has not been known what controls the production of these antibodies, why they appear, or how to stop this part of the process. Our project has focused on a type of immune regulatory cell that we found to be deficient in T1D and which has the capacity to shut down this deleterious step. Throughout our project, we determined new ways to expand and enhance these cells and demonstrated that they could prevent diabetes in the animal model. In additional studies, we attempted to determine how they might protect islet transplants. Through these studies, we determined that these cells may work through previously unidentified interactions in order to carry out their protective program. We further confirmed that the antibody-producing B lymphocytes are the key barrier that prevent us from having successful islet transplants. By supporting our investigation of protective immune cells and their functions, you have helped us become better enabled to repair the immune system and restore normal immune function so that islet destruction is stopped. In the future, we look forward to expanding on these results to continue to develop new approaches to facilitate beta cell replacement.

Update as of 4/14/17:

We continue our study of immune regulatory cells for the prevention and reversal of T1D. By contributing to our understanding of protective immune cells and their functions, we will be better enabled to repair the immune system and restore normal immune function so that islet destruction is stopped. Over the last 4 months, we have addressed several approaches to help these cells reach their maximum activity; in this effort we have also determined that the cells that destroy islets appear to resist the effects of these regulatory cells. Therefore, in the last phase of this initial project, we will look to enhance the effect of these novel immune regulatory cells by sensitizing other immune cells to their actions. Building on these results, we will continue our investigation to optimize our approach to alter the course of T1D.

Update as of 9/1/16:

We continue our study to determine how a new type of regulatory cell can prevent and reverse T1D. These cells are known to protect islets from destruction in both spontaneous diabetes and also following islet transplantation. Over the last 4 months, we have focused on understanding how these cells interact with their targets. We have determined that one of the molecules that was previously thought to be absolutely required for their function is not needed when they protect beta cells from destruction. We are currently preparing these findings for publication. These findings will help us to focus on the necessary and sufficient features that allow these cells to work to protect islets. Building on these results, we will continue our investigation to determine how these cells can be optimized to alter the course of T1D.

Update as of 4/26/16:
We continue our study to apply a new type of regulatory cell for the prevention of T1D. By contributing to our understanding of protective immune cells and their functions, we will be better enabled to repair the immune system and restore normal immune function so that islet destruction is stopped. Over the last 4 months, we have better defined the identity of these special cells, have examined their response to survival factors, and have extended our knowledge of how they can interact with and protect islets. Building on these results, we will continue our investigation to determine how these cells can be optimized to alter the course of T1D.

Video Update as of 11/08/16:
https://www.youtube.com/watch?time_continue=1&v=nBb0Mdu036M&feature=emb_logo

Update as of 4/14/17:
We continue our study of immune regulatory cells for the prevention and reversal of T1D. By contributing to our understanding of protective immune cells and their functions, we will be better enabled to repair the immune system and restore normal immune function so that islet destruction is stopped. Over the last 4 months, we have addressed several approaches to help these cells reach their maximum activity; in this effort, we have also determined that the cells that destroy islets appear to resist the effects of these regulatory cells. Therefore, in the last phase of this initial project, we will look to enhance the effect of these novel immune regulatory cells by sensitizing other immune cells to their actions. Building on these results, we will continue our investigation to optimize our approach to alter the course of T1D.