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Research Snapshot

JDRF is the largest nonprofit funder of type 1 diabetes (T1D) research in the world. Our goal is to eventually cure and prevent T1D entirely. Along the way to a cure, we seek to deliver an ongoing stream of therapies until we have turned Type One into Type None. Your support is moving scientific progress forward in many areas. Thank you for your commitment to JDRF and for helping us pursue our vision of a world without T1D.

Protecting Beta Cells

Advancing life-changing therapies for T1D is at the very heart of JDRF's mission. In T1D, the immune system mistakenly attacks the insulin-producing beta cells in the pancreas, destroying the body's ability to produce insulin to regulate blood glucose. One approach to restoring this function is transplanting beta cells into the body, but transplants have a downside—high doses of potentially toxic drugs are needed to block the same autoimmune attack that initially triggered T1D.

JDRF is working hard to solve this problem by pioneering encapsulated cell therapy, in which beta cells are wrapped in a protective barrier that is implanted in the body. The encapsulated beta cells release insulin when needed and regulate blood-glucose levels, while the barrier shields them from being destroyed by the immune system. If successful, this therapy would virtually eliminate the relentless daily management burden for those living with T1D: no need for multiple daily insulin injections or pump therapy, no more constant blood testing, and no more carb counting. People with T1D would go about their lives for extended periods of time as if they didn't have the disease.

JDRF is getting closer to delivering an encapsulation device through a partnership with ViaCyte. The biotechnology company has created a product that will be implanted under the skin through a simple outpatient surgical procedure and can be retrieved, if necessary. The first round of human clinical testing is planned for 2014. In the coming years, JDRF will advance a number of encapsulation approaches to human trials to determine which are most promising, effective, and safe to deliver to people with T1D.

In 2012, Forbes *magazine named JDRF one of its five "All-Star" charities, based on its evaluation of JDRF's financial efficiency.*

Getting to the Root of T1D

The immune system comprises complex biological structures and processes that protect the body against disease. Yet sometimes the immune system can go haywire, leading to an attack on the beta cells and resulting in T1D. Identifying when or if the immune system will attack can be tricky, even for the most skilled researchers. But doing so would allow scientists to possibly prevent T1D before it even starts.

JDRF is making progress by examining the blood of children for the presence of islet autoantibodies—molecules that indicate the autoimmune system is prepared to attack. By following more than 13,000 children from infancy up to age three in a decade-long study, a global team of researchers strengthened the link between islet autoantibodies and the risk of developing T1D—giving scientists the first true estimate of when the onset of T1D may begin and will help better identify children with the highest risk for developing the disease.

JDRF continues to move prevention research forward by funding studies like this, as well as advocating for additional support through the Special Diabetes Program (SDP) of the National Institutes of Health. SDP is a key component of the federal government's commitment to T1D research, including large-scale clinical trials testing promising treatments and potential cures, and has provided $1.9 billion in funds since 1997.