

SPRING 2012

# COOL Research News



**W**hether you are newly diagnosed or have been living with type 1 diabetes (T1D) for a long time, JDRF is committed to improving the lives of all people affected by the disease. We aim to accelerate the progress of research to provide better treatments, prevention, and ultimately a cure for T1D. We hope that you will enjoy reading about two exciting areas of research that have the potential to bring us closer to our goal.

## The New Smart Kid

Continuous glucose monitors (CGMs) are really cool because they track your blood-glucose levels all day, and you don't need to prick your finger. They're also cool because they can be used with an insulin pump so that you don't have to give yourself injections. CGMs can feel bulky, however, and they do have lots of parts. There's a sensor that sits under your skin to monitor your glucose, and a transmitter that sends your glucose levels to a receiver that is strapped to your belt; the receiver then sends this information to a controller that uses these glucose numbers to decide when and how much insulin you need. It can seem like a lot of equipment.

JDRF is working to reduce the number of devices it takes to monitor your blood glucose. The organization is funding a medical company that is designing a new transmitter that is so smart that you will no longer need to carry around a receiver. The smart transmitter sends your glucose levels straight to the controller, and that means one fewer piece of equipment to carry around and fewer dangling wires. The company is called Dexcom, and it is making the very first smart transmitter so that researchers can use it in clinical trials. The idea is to make the smart transmitter available to doctors everywhere so that people with type 1 diabetes can keep their glucose levels in control a lot more easily.

## Stressed-Out Beta Cells

In type 1 diabetes (T1D), the immune system gets a pretty bad reputation. It attacks and destroys the beta cells in the pancreas, and that leaves you in need of insulin, a hormone that helps keep your blood glucose in check. But it turns out that the beta cells themselves might also play a role in their own downfall. In April, JDRF-funded researchers at the Indiana University School of Medicine published a study that suggests that the beta cells may actually initiate the series of events that leads the immune system to target and kill them.

What the scientists think is happening is that the beta cells get overworked and become stressed. When the beta cells cannot ease that stress or cope with it, they change or might even start to die. It's those changes in the beta cells that might actually provoke the immune system to attack them. If researchers could find a way to alleviate that stress, or a way to help beta cells cope with that stress, it might be possible to prevent the loss of the cells.

This study is important because it starts to shift the way scientists think about the role of beta cells in how T1D develops and progresses. So the more we understand about how the disease is working and what events trigger it, the more we can understand about ways to stop its progression, and treat the disease at an earlier stage.

To find out more about T1D research, or how to get involved with JDRF in your community, visit [www.jdrf.org](http://www.jdrf.org).