

A Federal Program That Works

The Special Diabetes Program (SDP) has delivered a wide range of benefits since it was launched 17 years ago. In its 2011 report to Congress, the NIH stated, “Because of research progress over the last 2 decades, including research supported by the Special Diabetes Program, people with [type 1 diabetes] are living longer and healthier lives than ever before and experiencing lower rates of disease complications.” This paper cites just a small sample of the breakthroughs flowing from research performed by scientists funded by SDP.

- Due to long-term studies funded by SDP, the way type 1 diabetes (T1D) is treated has permanently changed, resulting in tighter glucose control which in turn leads to complications from T1D, such as a reduction in end stage renal disease.
- SDP funded research has accelerated the development of artificial pancreas systems, which will help patients with diabetes better manage their blood sugar levels and reduce costly and burdensome complications. A recent study by researchers at the University of Chicago and Harvard shows that development of the artificial pancreas will save Medicare almost \$1 billion over 25 years.
- SDP-funded research discovered that combining a drug and laser therapy can reverse vision loss in people with type 1 and type 2 diabetes (T2D).
- SDP-funded research has led to the discovery that several immune system modulation therapies can slow the immune attack for over one year in patients newly diagnosed with T1D.
- SDP research has identified nearly 50 genes or genetic regions, up from three genes a decade ago, that influence a person’s risk of developing T1D, dramatically advancing understanding about the causes of the disease and opening up new pathways to curing it.
- The Environmental Determinants of Diabetes in the Young (TEDDY) study has enrolled 8,600 at-risk children from birth, observing them over a period of 15 years, and is raising hope that scientists may soon understand some environmental triggers for T1D, potentially leading to preventive vaccines, dietary changes, and other interventions to halt the onset of T1D.
- SDP researchers have found key differences in the microbes living in the digestive tract of those with T1D compared to those without diabetes, indicating a new area of research that may identify ways to prevent T1D.
- SDP research is increasing the potential viability of islet cell transplantation as a way to restore the body’s ability to create insulin.
- SDP researchers in the Beta Cell Biology Consortium (BCBC) are exploring the potential for non-insulin producing pancreatic cells to be reprogrammed to insulin-producing cells.
- The SDP provided seed funding to establish proof of concept for encapsulated insulin, an injectable form of “smart insulin” that would detect when blood glucose levels are high and dispense insulin in response to the body’s needs. Based on promising data, a major pharmaceutical company has licensed the technology and is developing it for trials and eventual use in patients, a great example of how SDP funds can be leveraged to stimulate private sector investment and get promising therapies to patients.
- T1D research also benefits people with other autoimmune diseases, which collectively affect approximately 5-8% of the U.S. population. Some of the type 1 genes identified through research supported by the SDP affect the immune system and are involved in other autoimmune diseases. Therefore, understanding the underpinnings of T1D could provide insights into the genetics and pathogenesis of other autoimmune diseases.