

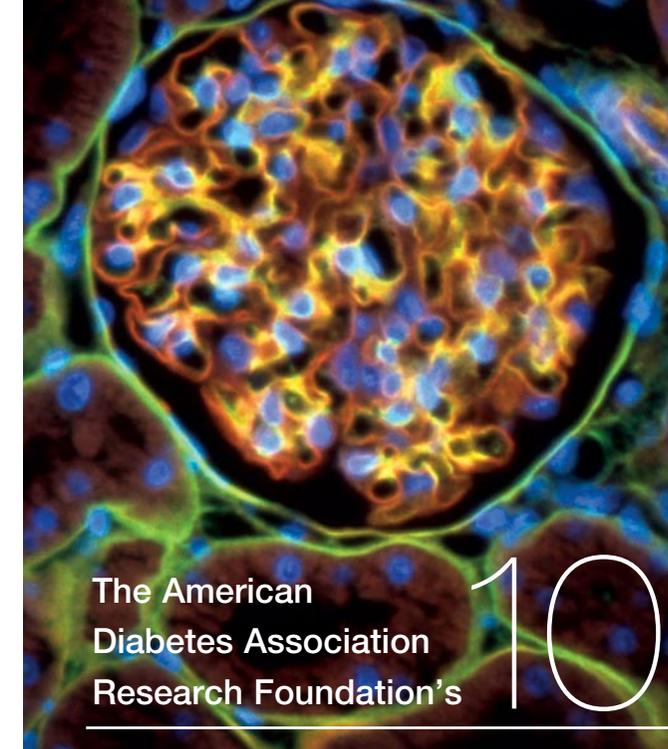


diabetes. In addition to determining a potential cause of gestational diabetes, the researchers proposed a potential therapy for reversing the disease: administering the hormone prolactin, which lowered menin levels and increased beta-cell mass.

*The ADA Research Foundation and its investment partners have witnessed progress in better therapies for treating diabetes. Each breakthrough fuels our belief in success and strengthens our resolve to stay the course until diabetes no longer threatens the health of our loved ones. With your financial support, we can anticipate major victories in understanding, treating and preventing diabetes.*

*If you would like expanded information on these discoveries and how to fund a specific project or researcher, please contact:*

**American Diabetes Association  
Individual Giving Department  
1-888-700-7029  
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The American  
Diabetes Association  
Research Foundation's

10

Breakthrough  
Highlights

**8 Gestational diabetes treatment lowers risk of obesity in children**

An ADA-funded researcher published new data on the relationship between high blood sugar in pregnant women and the risk of future obesity in their children.

This ADA Clinical Research Award is the largest study thus far to reveal that, as high blood sugar levels increase in pregnant women, so does the future risk of obesity in their children. The study found that, in women with untreated gestational diabetes, 35% of their offspring were overweight and 20% were obese by age 5-7 years.

**9 ADAG study calculates an easy-to-understand average glucose level**

The ADA co-sponsored a study, ADAG (HbA1c Derived Average Glucose) to determine there is a correlation between HbA1c values and blood glucose measurements.

Currently, one's HbA1c is usually represented as a percentage, but this number does not have a great deal of meaning to someone who measures their daily glucose levels in terms of mg/dL. The ADAG study developed an easier to understand method of determining someone's

average glucose level over a period of time by calculating an estimated average glucose level measured in mmol/L or mg/dL.

**10 Scientists discover a protein that could lead to gestational diabetes**

An ADA Medical Scholars Award recipient and his mentor published a paper that reported the protein, menin, plays a role in the development of diabetes in pregnant women.

They found that excess amounts of menin prevented beta-cell mass from increasing and caused mice to develop gestational



*The American Diabetes Association (ADA) Research Foundation had an exciting and successful year in 2007, thanks in part to your generous donations!*

*The diabetes world was astounded when ADA-funded researchers helped discover seven new genes linked to type 2 diabetes and obesity.*

*In addition, great strides were made in the gestational diabetes arena. ADA-funded researchers found concrete evidence that treating mothers with gestational diabetes lowers the risk for obesity in children.*

*Scientists also explored the possibility of a new protein related to gestational diabetes, as well as new diagnostic criteria needed to study gestational diabetes.*

*Meanwhile, type 1 diabetes research advanced thanks to new discoveries in islet autoimmunity and the detection of a new transcription factor (SOX9).*

*These promising developments are already being built upon by the ADA Research Foundation's currently funded researchers. The brightest diabetes scientists in the world are hard at work putting your generous gifts to good use. Thank you for your dedication!*

*We invite you to further explore the ADA Research Foundation's 10 Breakthrough Highlights*





*The brightest diabetes scientists in the world are hard at work putting your generous gifts to good use.*

**1** Researchers discover seven new genes that predict type 2 diabetes

A group of researchers discovered seven new genes linked to type 2 diabetes and obesity. The ADA-funded scientists in that group received support from an ADA-Richard & Susan Smith Family Foundation Pinnacle Program Project Award.

Prior to the discovery, only three genes were known to be involved in increasing the risk for type 2 diabetes. Now that more type 2 diabetes genes have been identified, scientists have added information to help them understand and fight the disease.

**2** Kv1.3 inhibitors prevent autoimmune destruction of the pancreas

ADA-funded researchers have demonstrated that compounds known as Kv1.3 inhibitors can prevent autoimmune destruction by a type of T cell implicated in both type 1 diabetes and rheumatoid arthritis.

**3** Research shows salicylates may reduce blood glucose levels

A study was launched to determine whether taking salicylates (anti-inflammatory drugs) can improve glucose and lipid levels in individuals with type 2 diabetes.

The large clinical trial, funded by National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), and entitled the Targeting INflammation using SALsalate for Type 2 Diabetes Study (TINSALT2D Study), is based on preliminary data obtained from a previous ADA Research Award.

**4** Islet cell replacement makes a step forward

An ADA-funded researcher discovered a new transcription factor (SOX9) which may be responsible for maintaining pancreatic progenitor cells and keeping them from differentiating into the several different cell types found in the pancreas.

This is important, because, in order to expand and grow progenitor cells in vitro and

maintain a supply of usable cells, the progenitor cells need to remain in an undifferentiated state.

**5** Diagnostic criteria are needed for gestational diabetes

The Hyperglycemia and Adverse Pregnancy Outcomes (HAPO) study, funded by the National Institute of Child Health and Human Development, and co-supported by the ADA, found that pregnant women who do

not have diabetes but still have higher-than-normal glucose levels have a higher risk of delivering large babies and/or having a baby who develops low blood glucose.

The ADA-funded HAPO investigator and his colleagues obtained DNA samples from mothers and infants.

The samples will become a critical resource for additional studies, such as genetic determinants of fetal growth, pre-dispositions to type 2 diabetes, obesity, hypertension and cardiovascular disease in women who have had gestational diabetes, as well as long-term growth and development and risks of obesity and diabetes in the children.

**6** Growth factor regenerates beta cells in mice

An ADA-funded researcher found that treating diabetic animals with growth factor can reverse their autoimmune diabetes for a prolonged period of time. Part of our Islet Cell Replacement Research Award initiative to find alternative sources of insulin-secreting cells, the study found that, when administered to diabetic animals, betacellulin (BTC) caused blood glucose levels to improve.

This study, funded by Don & Arleen Wagner and Edsel & Cynthia Ford, was also able to identify the cellular receptor by which BTC acted and found that regeneration of beta cells was due, in part, to division of the remaining beta cells in the pancreas.

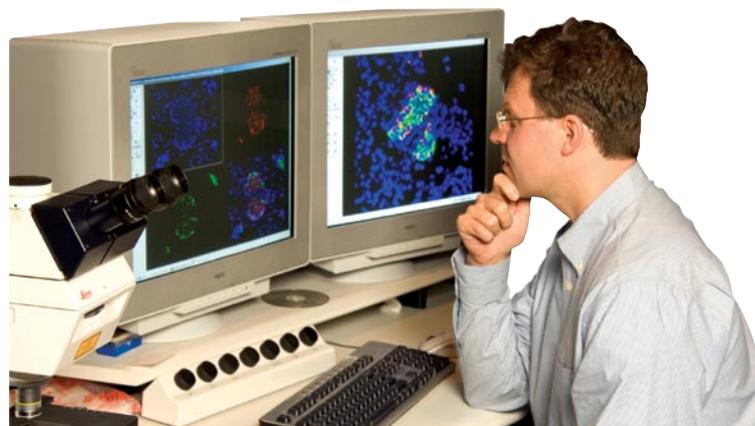
**7** Islet autoimmunity in mothers confers a reduced risk of high birth weight

Through an ADA Terry & Louise Gregg Diabetes in Pregnancy Research Award, a team of researchers investigated whether infections during pregnancy can cause islet autoimmunity in the mother, which consequently increases the risk of type 1 diabetes in her child later in life.

By studying the umbilical cord blood of children born to mothers with type 1 diabetes or gestational diabetes, and healthy mothers, the researchers found that children with HLA genotypes that put them at high risk for type 1 diabetes are more likely to have a high relative birth weight, as are children whose mothers had infections during pregnancy.

However, islet autoimmunity in the mother was associated with a reduced risk of high birth weight. This suggests a relationship between HLA, infection during pregnancy, islet autoantibodies and fetal growth.

*ADA-funded awards are a testament to how science will constantly surprise us, change our expectations, and never quite give us what we expect.*



*By investing more today, we can realistically expect a return that will bring unprecedented scientific opportunities in the future*