

STEM CELLS, DIABETES, AND OBESITY

Tennessee State University Department of Biological Sciences Presents

Calorie-Coated Diabetes

What is biotech doing to prevent and treat diabetes?

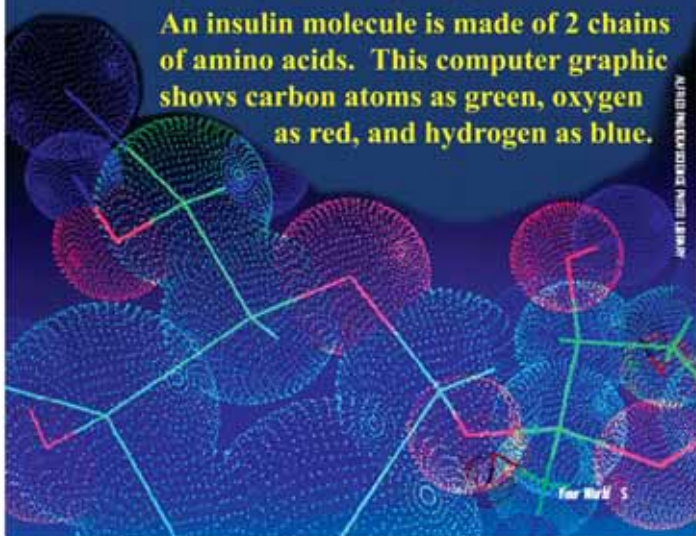


FACTOID

About 18.2 million Americans, or 6.3 percent of the population, had diabetes in 2002, and the numbers are rising. Lifestyle patterns you're setting now, as well as genetics, may lead to or lower the risk you'll get diabetes.

B-CHAIN OF INSULIN MOLECULE

An insulin molecule is made of 2 chains of amino acids. This computer graphic shows carbon atoms as green, oxygen as red, and hydrogen as blue.



Jan 27

Stem Cells, Insulin, and the Nutritional Regulation of Drosophila Oogenesis

Daniela Drummond-Barbosa, PhD
Vanderbilt U School of Medicine

Feb 3

Molecular Triggers of Pancreas Formation From Stem Cells

Christopher V. Wright, PhD
Vanderbilt U School of Medicine

Feb 10

Stem Cells and Protein Transduction: Novel Approaches To Induce Pancreatic Differentiation

Juan Dominguez Bendala, PhD
U of Miami Miller School of Medicine

Feb 17

Obesity: Are Our Thrifty Genes Doing Us In?

Kevin D. Niswender, PhD
Vanderbilt U School of Medicine

Feb 24

Is It the Genes or the Jelly Beans? The Genetic Contribution to Obesity in Children and Adults

Bruce Boston, MD
Oregon Health & Sciences University

Mar 24

Adult Pancreatic Endocrine Stem Cells: Do They Exist?

Fred Levine, PhD
The Burnham Institute

MAKING TRANSPLANTS EASIER

A current but very difficult treatment for diabetes is to transplant a pancreas or its beta cells. Beta cells are part of the endocrine system and produce insulin. The transplant attempts to replace cells destroyed by the immune system. The beta cells can sometimes be injected so they lodge in the liver and produce insulin. But it is difficult to keep the immune system from continuing to destroy the new beta cells too. In April 2005 for the first time, doctors transplanted beta cells from a live donor, a mother to her daughter. Biotechnologists are developing immunosuppressive drugs to prevent the body from destroying its own beta cells. Gene therapy genetically modifies beta cells before transplantation to protect them from the immune system. The use of stem cells may offer another approach for treating this disorder in the future.