

SOUTHWESTERN NEWS

Media Contact: Donna Steph Hansard
214-648-3404

donna.hansard@utsouthwestern.edu

EMBARGOED UNTIL 11 P.M. CST, THURSDAY, MARCH 24, 2005

UT Southwestern researchers uncover gene variant that appears to predict type 2 diabetes

DALLAS – March 25, 2005 – A particular gene variant that could serve as a predictor for type 2 diabetes has been identified by researchers at UT Southwestern Medical Center.

Their findings indicated that a variation in the gene *ENPP1* was as much as 13 percent more common in people with type 2 diabetes and those at greater risk for the disease. While further studies are needed, researchers said these results suggest that the variant may serve as an important genetic marker in identifying people at risk for type 2 diabetes.

“This important study uncovers one of the genes that appears to predispose to type 2 diabetes,” said Dr. Scott Grundy, director of UT Southwestern’s Center for Human Nutrition and the study’s senior author.

In the study available online and scheduled to appear in the April issue of *Diabetes*, the researchers evaluated a specific gene in three study groups – South Asians, South Asians living in Dallas and Caucasians living in Dallas. Some study subjects suffered from type 2 diabetes, others had risk factors for the disease, while still others showed no signs of diabetes or any apparent risk factors.

“The implication from our study is that if a person has this gene variation, then – without waiting for the development of insulin resistance – he or she should be encouraged to follow lifestyle changes that could help prevent the onset of diabetes,” said Dr. Nicola Abate, associate professor of internal medicine in the Center for Human Nutrition and the study’s lead author.

Type 2 diabetes has become a serious health problem, particularly in light of the growing number of overweight and obese individuals in the United States, Dr. Abate said. In type 2 diabetes, cells ignore available insulin (insulin resistance) and not enough insulin is produced to maintain plasma glucose within a normal range. While obesity is one of the major risk factors for type 2 diabetes, not all obese people develop type 2 diabetes nor are all type 2 diabetics overweight.

Certain ethnic populations appear to have a higher risk of developing type 2 diabetes, whether overweight or not, particularly South Asians – people originating from India, Pakistan and Bangladesh.

The study focused on 679 South Asians living in Chennai, India (of which 223 had type 2 diabetes); 1,083 South Asians living in Dallas who were new immigrants or first-generation immigrants from India, Pakistan or Bangladesh (of which 121 had type 2 diabetes); and 858

(MORE)

THE UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER AT DALLAS

Southwestern Medical School • Southwestern Graduate School of Biomedical Sciences • Southwestern Allied Health Sciences School
Affiliated teaching hospitals and outpatient clinics

Office of News and Publications • 5323 Harry Hines Blvd., Dallas TX 75390-9060 • Telephone (214) 648-3404 • FAX (214) 648-9119

Diabetes predictor – 2

nonmigrant Caucasians living in Dallas (of which 141 were type 2 diabetics). All study participants with type 2 diabetes were required to have had diabetes onset before age 60.

All subjects were evaluated for diabetes and family history of diabetes, as well as overall general health, and had blood tests conducted for genetic sampling.

Results showed the presence of the *ENPP1* variant in 25 percent of the nondiabetic group and in 34 percent of the diabetic group of South Asians living in India; in 33 percent and 45 percent, respectively, in the nondiabetic and diabetic South Asians in Dallas; and 26 percent and 39 percent, respectively, in the nondiabetic and diabetic Caucasians. The gene *ENPP1* encodes a protein that blocks the action of insulin. The genetic variation increases the action of this protein and blocks insulin action even more.

“Earlier studies we conducted showed a propensity toward insulin resistance and type 2 diabetes in South Asians, even when they were thin,” Dr. Abate said. “This study expanded that to include diabetic patients and Caucasians of European descent. It also took into account the possible influence of environmental factors by comparing South Asians in both Dallas and in Chennai.

“Consistently, we found that this gene variant in all three groups predicted diabetes.”

UT Southwestern researchers plan to expand their studies to other ethnic populations, as well as further examine the specific protein involved, with the hope of eventually identifying people at risk for type 2 diabetes and developing drug therapies that could be used to prevent its onset.

“Dr. Abate’s previous studies showed that abnormalities in the gene *ENPP1* contributed to insulin resistance. Now, Dr. Abate and his associates have demonstrated that this gene’s effects on insulin resistance have biological significance in that its abnormalities make it more likely that people will develop diabetes,” Dr. Grundy said. “This study is particularly revealing because of the past difficulty in identifying diabetes-causing genes on the part of geneticists working in the diabetes field.”

Other researchers involved in the study were Dr. Manisha Chandalia, associate professor of internal medicine, Beverley Adams-Huet, a faculty associate in internal medicine and a biostatistician in UT Southwestern’s Center for Biostatistics and Clinical Science, and former UT Southwestern postdoctoral fellow Dr. Pankaj Satija, as well as researchers from the M.V. Diabetes Specialties Centre and Madras Diabetes Research Foundation in Gopalapuram, Chennai, India.

###

This news release is available on our World Wide Web home page at
<http://www.utsouthwestern.edu/home/news/index.html>

To automatically receive news releases from UT Southwestern via e-mail,
subscribe at www.utsouthwestern.edu/receiveneews