SOUTHWESTERN NEWS

Media Contact: Amy Shields
214-648-3404
amy.shields@utsouthwestern.edu

UT SOUTHWESTERN RESEARCHERS IDENTIFY GENE RESPONSIBLE FOR A RARE BODY-FAT DISORDER

DALLAS – May 1, 2002 – An international team of researchers led by scientists at UT Southwestern Medical Center at Dallas have identified the gene that causes a rare body-fat disorder, a discovery that may ultimately expand the understanding of obesity-related illnesses.

The researchers report that the disorder, congenital generalized lipodystrophy (CGL), or the extreme lack of body fat at birth, occurs as a result of mutations in the *AGPAT2* gene, which is involved in the production of fat. This is the first documented human disorder that disrupts the biochemical pathway of fat synthesis.

The study appears in the May issue of *Nature Genetics*.

"Now we know why patients with congenital generalized lipodystrophy are unable to synthesize fat in a normal fashion," said Dr. Abhimanyu Garg, professor of internal medicine and chief of nutrition and metabolic diseases at UT Southwestern and senior author of the study. Even though this is a rare disease affecting approximately one in 12.5 million people, our findings may have implications to the understanding of insulin-resistance disorders and common forms of obesity."

Garg, a senior investigator in the Center for Human Nutrition, has been studying lipodystrophy patients referred from all over the world for the past 16 years.

The mutated form of the *AGPAT2* gene was identified in the 11 families that participated in the study. Characterized by partial or complete lack of body fat at birth, individuals affected by this disorder develop severe diabetes as teen-agers. Other complications include severe insulin resistance, high blood lipids and an accumulation of fat in the liver.

"Although we understand how an abnormal *AGPAT2* gene may cause lack of body fat, we still need to study how the abnormal gene leads to severe insulin resistance, diabetes, high blood lipids and fatty liver," said Dr. Anil Agarwal, assistant professor of internal medicine and lead author of the study.

(MORE)

Garg said, "It is very possible that some abnormalities in the genes involved in the pathway of fat synthesis can cause increased fat deposition and obesity.

"The identification of this gene will allow us to better define the normal role of genes involved in the growth and development of body fat during embryonic life and at the start of puberty.

"We will also elucidate how these genetic abnormalities affect the action of insulin on the fat cells, liver and muscle, which will lead to a better understanding of how common types of obesity cause insulin resistance and other metabolic complications."

The first step in this discovery was a careful evaluation and understanding of the characteristic features of patients affected with this disorder. This led Garg and his collaborators to locate the gene on chromosome 9 in 1999, which led to the identification of the gene this year.

Other research collaborators include Robert Barnes, programmer analyst in the Eugene McDermott Center for Human Growth and Development at UT Southwestern; and researchers with the National Institute of Diabetes and Digestive and Kidney Diseases; the Hospital de Dona Estefania in Portugal; the Dokuz Eylul University School of Medicine in Turkey; and Washington University School of Medicine.

The study was funded by the National Institutes of Health and the Southwestern Medical Foundation.

###

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

To automatically receive news releases from UT Southwestern via e-mail, send a message to UTSWNEWS-REQUEST@listserv.swmed.edu. Leave the subject line blank and in the text box, type SUB UTSWNEWS