

## Researchers Explore Biology of Type 2 Diabetes

By Leslie Ridgeway on January 21, 2010 7:41 AM

Researchers at the Keck School of Medicine of USC have discovered new genetic variants that provide insights into the biology of type 2 diabetes and may lead to improved treatment for patients with the disease.

Two papers co-authored by Keck School of Medicine researchers Richard M. Watanabe, Richard N. Bergman and Thomas A. Buchanan were published Jan. 17 in the journal *Nature Genetics*. The research focuses on the discovery of genetic variants (or loci) regulating glucose levels, as well as type 2 diabetes.

The genome-wide analysis was performed by the Meta-Analyses of Glucose and Insulin-related traits Consortium (MAGIC), an international collaboration. The Keck School is a member of MAGIC.

"The findings are very exciting," said Watanabe, co-senior author on one of the papers.

"They open up some very interesting avenues of new research. When we discover a genetic locus for a disease, the locus can be a potential target for a new drug.

"The discovery also can help us in other studies to identify how a patient might respond to a drug, or help us understand other aspects of a disease's biology," he explained. "These studies also demonstrate that diabetes risk variants can be identified by studying diabetes-related traits in individuals who don't have the disease."

The data analysis was conducted to identify important genes regulating glucose levels in individuals without type 2 diabetes. MAGIC also examined whether these genes contributed to susceptibility to type 2 diabetes.

The first paper identified 10 new genetic variants contributing to differences in glucose levels in more than 46,000 non-diabetic individuals of European ancestry. These variants also contribute to variation in fasting insulin, insulin resistance and the function of insulin-secreting beta cells of the pancreas. Five of these variants also contribute to risk for type 2 diabetes.

The second paper identified three new genetic variants that contribute to elevated glucose levels two hours after orally ingesting glucose.

The preliminary findings of the research were presented at the American Diabetes Association Scientific Sessions last summer in New Orleans.



Richard Watanabe, co-senior author of the research