Study shows how gene action may lead to diabetes prevention, cure

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A gene commonly studied by cancer researchers has been linked to the metabolic inflammation that leads to diabetes.

Understanding how the gene works means scientists may be closer to finding ways to prevent or cure diabetes, according to a study by Texas AgriLife Research appearing in the Journal of Biological Chemistry.

"Because we understand the mechanism, or how the gene works, we believe a focus on nutrition will find the way to both prevent and reverse diabetes," said Dr. Chaodong Wu, AgriLife Research nutrition and food scientist who authored the paper with the University of Minnesota's Dr. Yuqing Hou.

Wu said the research team will collaborate with nutritionists to identify what changes or supplements in a diet will activate the gene to prevent or stop the progression of diabetes.

Diabetes is a disease in which blood sugar (glucose) levels are higher than normal and the body has a hard time converting food to glucose which is then turned into energy, according to the National Institutes of Health. When the body cannot metabolize food, the amount of glucose builds in the blood while the cells lack energy. Complications can include heart disease, stroke, kidney disease, blindness, nerve problems and gum infections. Some of the complications can lead to amputation.

The gene with the possible answers to ways of fighting the disease is

known in the science world as PFKFB3. Wu and the team of researchers identified it as a regulator for metabolism, which plays a vital role in the development of diabetes.

Wu noted that while it is a major health concern in the U.S., obesity does not necessarily cause diabetes to develop; i.e., just because a person is overweight does not mean they have diabetes. Rather, "metabolic inflammation" causes or exacerbates the disease. That's where the team began looking at PFKFB3 -- because it regulates metabolism -- to find the mechanism or how the inflammation begins. Metabolic inflammation is different from classic inflammation because there is no infection, virus or bacteria present, though the symptoms appear similar.

He believes nutritionists working with the biological chemists can help develop food consumption plans that either prevent people from developing metabolic inflammation or cause existing conditions to retreat.

"First we will need to identify what effective compounds will trigger the gene to regulate metabolism," Wu said. "Then we need to determine what combinations within foods are more effective."

In the meantime, Wu suggested, people need to consume healthier foods.

"Basically, fish and seafood," Wu said. "That's always good in a diet."

Source: Texas A&M AgriLife Communications