Discovery may lead to new drugs to curb obesity, type 2 diabetes

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(Medical Xpress)—An international study led by a researcher from The University of Western Australia for the Western Australian Institute for Medical Research (WAIMR) has produced exciting results that may lead to new drugs to treat obesity and reduce the incidence of Type 2 diabetes.

UWA Assistant Professor Vance Matthews led researchers in Melbourne, Texas and Japan to explore the effects of a protein on the surface of human cells on conditions such as Type 2 diabetes and obesity.

Their results have appeared in the high-ranking immunology journal *Immunology and Cell Biology*, published by the Nature Publishing Group .

Assistant Professor Matthews said the research was particularly important because adult obesity had increased by 75% in the past 25 years, including an alarming increase in overweight and obese children. Insulin resistance correlated directly with obesity and could result in Type 2 diabetes, in which chronic inflammation occurred in metabolically active body tissues.

"While my research looks at the growing problems of obesity and type 2 diabetes and how the inflammatory pathways are activated in our bodies, our discoveries also have far-reaching consequences for other diseases that involve inflammation," Assistant Professor Matthews said.

The study established that many parameters of the metabolic syndrome such as obesity and insulin resistance were significantly correlated with high levels of the metalloproteinase known as ADAM28 in inflammatory cells.

The group explored interactions between the protein TNF-alpha – which is produced by numerous inflammatory cell types – and the metalloproteinase ADAM28. TNF-alpha is a well-known cytokine that promotes insulin resistance and increases the risk of Type 2 diabetes.

The study highlighted that the metalloproteinase ADAM28 may increase the release of TNF-alpha protein from the cell surface, and this effect may promote inflammation.

"Our project is very significant because it demonstrates for the first time the importance of ADAM28 in the metabolic syndrome, and further supports that metalloproteinase inhibition is a potential therapeutic target for anti-obesity agents," Assistant Professor Matthews said.

"This means that further down the track, drugs may become available to treat obesity, therefore reducing the incidence of type 2 diabetes."

Provided by University of Western Australia