

Impaired fat-burning gene worsens diabetes

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Researchers at the Swedish medical university Karolinska Institutet have in collaboration with researchers from Finland, China, Japan and the US discovered new cellular mechanisms that lead to insulin resistance in people with diabetes. The results are published in the scientific journal *Cell*.

Type 2-diabetes is a chronic disease resulting from a reduction in insulin-production from the pancreas or an inability of other tissues in the body to respond adequately to the produced insulin, so called insulin resistance. This leads to increased blood sugar, which in turn leads to a worsening of the insulin resistance, increasing the risk of developing many serious diabetes-associated complications.

An international research team, led by Professor Juleen R. Zierath at Karolinska Institutet in Stockholm have identified previously unknown molecular mechanisms by which elevated blood sugar leads to impaired insulin sensitivity in people with diabetes. The research team identified a 'fat-burning' gene, the products of which are required to maintain the cells' insulin sensitivity.

They also discovered that this gene is reduced in muscle tissue from people with high blood sugar and type 2-diabetes. In the absence of the enzyme that is made by this gene, muscles have reduced insulin sensitivity, impaired fat burning ability, which leads to an increased risk of developing obesity.

“The expression of this gene is reduced when blood sugar rises, but

activity can be restored if blood sugar is controlled by pharmacological treatment or exercise”, says Professor Juleen Zierath. “Our results underscore the importance of tight regulation of blood sugar for people with diabetes.”

Source: Karolinska Institutet

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