

Researchers report breakthrough in lowering bad cholesterol, fatty acid levels

January 10 2008

There is “heartening” news out of the University of Alberta for those who may have overindulged during the recent holidays.

U of A medical researchers have found a way to reduce the amount of bad cholesterol and fatty acids that end up in the blood from food the body metabolizes, a key discovery that could lead to new drugs to treat and reverse the effects of Type 2 diabetes and heart disease related to obesity.

In a series of recently published articles, Dr. Richard Lehner and his colleagues report they successfully decreased the level of LDL (low-density lipids) – the so-called bad cholesterol – in the blood of mice and hamsters by manipulating a particular enzyme.

It’s well-known that eating too much fat and sugar and too little exercise will make you fat, and that obesity often leads to diabetes and heart disease. Lehner’s group studied the mechanisms behind this.

“We established the proof of principle of how these metabolic pathways work,” he says. “We discovered the activity of an enzyme that releases fatty acids from fat cells and the liver into the blood and how to inhibit this from happening.”

Drugs called statins are used to lower LDL levels in patients, but do not treat obesity. What makes the U of A researchers’ findings noteworthy is their discovery of how to inhibit LDL and triglycerides, which are

another form of fat in the blood and a leading risk in obesity-related Type 2 diabetes as well as heart disease.

Lehner is director of the Group on Molecular and Cell Biology of Lipids in the U of A's Faculty of Medicine and Dentistry. The research is being supported by the Canadian Institutes of Health Research and the Heart and Stroke Foundation.

Lehner is also a senior scholar for the Alberta Heritage Foundation for Medical Research.

"There is a substantial pharmacological interest in the enzymes that control TG (triglycerides – fatty acids) and cholesterol metabolism in tissues," he says.

This unique discovery is an important scientific breakthrough, but one that requires further testing, he notes.

He also notes that a pill would not be "a magic bullet." People still need to make the right lifestyle choices by exercising and eating properly, he says.

Citation: *Journal of Lipid Research* (December 2007); *Journal of Biological Chemistry* (November 2007, March 2007)

Source: University of Alberta

Citation: Researchers report breakthrough in lowering bad cholesterol, fatty acid levels (2008, January 10) retrieved 4 May 2024 from <https://medicalxpress.com/news/2008-01-breakthrough-lowering-bad-cholesterol-fatty.html>

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