

Rolf Kristian Berge

Professor, Department of Clinical Science (K2), The Lipid Research Group.

Bioactive fatty acids and peptides targeting obesity-related diseases and the role of hepatic mitochondrial function in combatting obesity.

When: Wednesday 4th of May, 14.15 - 15

Where: Store Auditorium, 3rd floor, Sentralblokken

Chair: Johan Fernø

Pizza for attendees between 14:05 – 14:15 !

Alterations in lipid and carbohydrate metabolism play a crucial role in the predisposition towards obesity and type 2 diabetes mellitus. Mitochondria are key players in cellular energy homeostasis and in the oxidative disposal of fatty acids. The proper functioning of the cells energy producing organelles are essential for a healthy organism and mitochondrial dysfunction leads to disease. Impaired fat oxidation during adaptation to an energy dense high-fat diet is observed in obese subjects and in individuals with a family history of obesity.

Dietary lipids have an important role in the development of obesity. Tetradecylthioacetic acid (TTA) is a modified saturated fatty acid with a sulphur atom inserted in the 3-position from the carboxylic end of the molecule. Due to the sulphur atom TTA is blocked for beta-oxidation. However, TTA stimulates mitochondrial fatty acid oxidation of natural fatty acids and induces mitochondrial proliferation in rat hepatocytes. The S-atom also contributes to the antioxidative and anti-inflammatory potential of TTA. I will discuss how TTA and other newly developed fatty acid analogues reduce plasma triglycerides and fatty liver, improve insulin sensitivity and attenuate atherosclerosis.

Improvement in dietary habits can decrease risk factors for heart disease such as high levels of LDL-cholesterol, triglycerides and inflammatory molecules. The health benefits of fish consumption is linked to the n-3 fatty acids (EPA and DHA). However, fish protein is a rich source of bioactive peptides with a valuable nutraceutical potential beyond that of n-3 PUFAs. Some of these effects will be addressed.

The seminar is open for everyone!

Part of the Course FSKLI902

«Perspectives in translational medicine», 1 studiepoeng (1ECTS).