

Lipid droplets are both highly oxidized and Plin2-covered in hepatocytes of insulin resistant-mice



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Biography

Espinosa A has completed her PhD at the age of 33 years from University of Chile, Chile. She is professor of Medical Technology Department of University of Chile, Chile. Dr. Espinosa is an expert in various areas of cell biology and biochemistry, currently focused on solving problems involving liver and skeletal disorders obesity-induced. She has over 70 publications that have been cited over 960 times, and her publication H-index is 20.

Abstract

Chronic high-fat diet feeding is associated with obesity and accumulation of fat in the liver, leading to the development of insulin resistance and non-alcoholic fatty liver disease. This condition is characterized by the presence of a high number of intrahepatic lipid droplets (LD), with changes in the perilipin pattern that covers them. This work aimed to describe the distribution of perilipin 2 (Plin2), an LD-associated protein involved in neutral lipid storage, and perilipin 5 (Plin5), that is favoring the lipid oxidation in lipid droplets and, to evaluate lipoperoxidation through live-cell visualization using the lipophilic fluorescent probe C11-BODIPY581/591 in fresh hepatocytes isolated from high-fat diet (HFD)-fed mice. Male C57BL/6J adult mice were divided in control and HFD groups and fed with a control diet (Control; 10% fat, 20% protein, and 70% carbohydrates) or a HFD (60% fat, 20% protein, and 20% carbohydrates) for 8 weeks. The animals fed the HFD show a significant increase of Plin2 in lipid droplets of hepatocytes. LD from HFD-fed mice have a stronger lipoperoxidation score than control hepatocytes. These data provide evidence that obesity status is accompanied by a higher degree of lipid peroxidation in hepatocytes, both in the cytoplasm and in the fats stored inside the lipid droplet.

Publications

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