

Effects of Bile Acids on Adipogenesis

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Abstract

Bile acids (BA) are important agents for intestinal digestion of lipids and have also been identified as signaling molecules used to maintain metabolic homeostasis. Loss of nuclear receptors Farnesoid X Receptor (FXR) and Small Heterodimer Partner (SHP), which negatively regulate BA, exhibited reduced body weight compared to wild type mice, even when placed on a high fat diet. Subsequently, high serum levels of bile acids and reduced white adipose tissue are observed in the double knockout (DKO) mice. In order to determine the role bile acids play in this beneficial phenotype, we examined BA effect on fat cell accumulation using the NIH-3t3 L1 cells. In differentiated adipocytes we observe a decrease in lipid droplet size, a marker of fat accumulation, in correlation with increasing amounts of bile acid treatments. This suggests that bile acids may have a protective effect against fat accumulation, which looks promising to treat obesity.