78d Modulating Nuclear Receptors to Regulate Lipid and Glucose Homeostasis for Hepatic Functions in Lean and Fatty Hepatocytes Cultures

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Nuclear Hormone Receptors are ligand activated transcription factors which are activated by binding to lipophilic ligands. The activated nuclear transcription factors have emerged as important regulators of lipid and glucose metabolism. These activated receptors, although pleitropic in nature, have been found to regulate the expression of genes involved in lipid and glucose metabolism and homeostasis. The modulation of these receptors provides a suitable therapeutic strategy for the management of various diseases ranging from diabetes to obesity. The current work investigates three different invitro hepatocyte cultures (lean hepatocytes; fatty-hepatocytes made fatty invitro using a high fat diet and;choline methionine deficient diet induced steatosis hepatocytes). Using various ligands for these receptors we have developed strategies for regulating lipid and glucose metabolism and, increasing hepatic functions in cultured hepatocytes for bioartificial liver. Importantly, our results suggest a new mechanism to differentially regulate/promote fatty oxidation and limit lipid esterification and storage in hepatocytes using various agonists and antagonists of these nuclear receptors.