Molecular Characterization of the Antihyperlipidemic Activity of Novel Indole-Carboxamides Series in Rats

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Abstract

Hyperlipidemia, is a known cause of coronary vascular diseases (CVD) that is a major cause of death in many parts of the world. Targeting several pathways that would lead to increase in lipids profile is of great potential to control CVD. Several compounds were synthesized at the Faculty of Pharmacy, Al-Zaytoonah University of Jordan and tested for their hypolipidemic activity *in vivo.* Of these potential agents, indole-carboxamide derivatives were selected to be tested for their activity at the molecular level. The gene expression profiles of fatty acid metabolism and lipoprotein signaling and cholesterol metabolism PCR arrays were determined for two derivatives; N-[4-benzoylphenyl]-1H-

indole-2-carboxamide(compound 1) and N-(3-benzoylphenyl)-1H-indole-2-carboxamide (compound 2) against the gene expression from rats in control group and Triton WR1339-injected group. Several genes of potential interest were reported to be over-expressed like long chain acyl-CoA synthetases (Acsl1), aldehyde dehydrogenase 2 (Aldh2) and apolipoprotein E (Apo e) while other genes were down-regulated like Acetyl-CoA acyltransferase 2 (Acaa2), Apolipoprotein a2 (Apo a2) and aldo-keto reductase family 1, member D1 (Akr1d1). These genes encode for proteins involved in fatty acid synthesis and degradation and in lipoprotein and cholesterol synthesis.