Design, Synthesis and *In Vivo* Biological Evaluation of Novel Benzimidazole-2-carboxamide Derivatives as Antihyperlipidemic Agents

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Abstract

Hyperlipidemia is resulted from the elevation of plasma lipids components. It contributes significantly to atherosclerosis, which will lead to cardio vascular disease (CVD). By targeting certain enzymes like lipoprotein lipase (LPL) which is involved in triglyceride (TG) metabolism, serum lipid concentration is decreased. Lipoprotein lipase catalytic pocket contain Ser-Asp-His triad. Based upon LPL structure and function, benzimidazole propylene carboxamide benzophenone derivatives have been designed and synthesized (compounds **7, 8** and **9**). These compounds have been docked against the active domain of LPL and showed to be fitted within the binding cleft. Compounds **7, 8** and **9** were tested *in vivo* to evaluate their potential hypolipidemic activity on hyperlipidemic rats induced by triton WR-1339. All compounds proved to be active, and the most active one is compound **9**, which shown to be the most active and has reduced TGs serum level by 95.7%. Bezafibrate was used as a reference drug.