Hypolipidemic Effect of XH601 on Hamsters of Hyperlipidemia and its Potential Mechanism

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Background: The novel compound XH601 is a synthesized derivative of formononetin. The present study was to investigate the hypolipidemia effect and potential mechanism of XH601.

Methods: Male Golden Syrian hamsters were induced by high-fat diet (HFD) for eight weeks and the hyperlipidemic model was established successfully. After XH601 treatment, serum and hepatic biochemistry parameters of hamsters were detected and the effect of XH601 on adipose tissue was also analyzed. Furthermore, 3T3-L1 cell differentiation by Oil-Red-O staining was observed and the mRNA and protein expression of peroxisome proliferator-activated receptors (PPARs) were measured by qRT-PCR and Western-blot in mature adipocytes.

Results: The in vivo results suggest that XH601 significantly decreased the adipose weight and levels of serum triglyceride (TG), total cholesterol (TC), low-density lipoprotein (LDL-C), apolipoprotein B (Apo-B), apolipoprotein E (Apo-E), while increased serum high-density lipoprotein (HDL-C). The in vitro results implied that XH601 up-regulated the mRNA and protein expression of both PPARalpha and PPARbeta/delta in a dose-dependent manner.

Conclusions: The study suggests that XH601 exhibited strong ability to improve the dyslipidemia in hamsters fed with high-fat diet. The potential mechanism of XH601 was associated with the up-regulation of PPARalpha and PPARbeta/delta mRNA and protein expression.