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## **Dickkopf-1 promotes human omental preadipocytes differentiation and adipocytokines secretion via canonical Wnt signaling pathway *in vitro***

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Evidence has demonstrated that Wnt/ $\beta$ -catenin signaling pathway serves as an important regulator of the differentiation and biology function of adipocytes. It had been known that activate canonical Wnt signaling blocks adipogenesis, and Dickkopf-1 (DKK-1) is an antagonist for this pathway, but little is known about the direct effects of DKK-1 on the differentiation and secretion of human primary preadipocytes. This study was aimed to investigate the effect of recombinant human DKK-1 (rhDKK-1) on the differentiation and adipocytokines secretion of preadipocytes *in vitro*. Preadipocytes were isolated from human omental adipose tissue and induced to differentiation in the absence or presence of rhDKK-1, culture supernatant was collected to analyse adipocytokines secretion, RT-PCR and Western-blotting were used to detect gene and protein expression. Our results showed that DKK-1 could be secreted by preadipocytes during early adipogenesis and the concentration declined after nine days. Exogenous rhDkk-1 exposure accelerated adipogenesis process by up-regulating adipogenic marker genes such as PPAR- $\gamma$ , C/EBP $\alpha$  and  $\beta$ -catenin, it can also down-regulate Wnt3a and Wnt10b expression, but it had no effect on non-canonical Wnt signaling marker Wnt5a. In addition, compared with the parallel control, rhDKK-1 can increase the secretion of leptin, RBP4 and TNF- $\alpha$  and adiponectin during differentiation. So we concluded that rhDKK-1 could promote preadipocytes differentiation and increase adipocytokines secretion via canonical Wnt signaling pathway *in vitro*.

### **Biography**

Hongyun Lu has completed her PhD from Sun Yat-sen University and oversea studies from Pennington Biomedical Research Center of Louisiana State University. Now she is working as master supervisor of Sun Yat-sen University and vice director of Endocrinology & Metabolism Department. She has published more than 40 papers in reputed journals and serving as an editorial board member of reputed journals. Her research interests include the molecular and cellular mechanism of obesity, type 2 diabetes, non-alcoholic fatty liver disease, lipid metabolism & atherosclerosis.

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