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Tangeritin inhibits adipogenesis by down-regulating C/EBPα, C/EBPβ, and PPARγ expression in 3T3-L1 fat cells

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ABSTRACT. The treatment of obese patients is a topic investigated by an increasing number of researchers. This study aimed to elucidate the possible inhibitory effect of tangeritin on the development and function of fat cells. 3T3-L1 fat cells were grown to confluence and subjected to different concentrations of tangeritin. The most effective tangeritin inhibition concentration was determined by the MTT assay. The treated cells were subjected to real-time reverse transcriptase PCR and western blot analysis, to detect changes in the CCAAT/enhancer binding protein (C/EBP)α, C/EBPβ, and peroxisome proliferator activated receptor (PPAR) γ expression levels. The MTT assay revealed that the fat cell growth was inhibited at a 20 ng/mL concentration of tangeritin. The results of real-time PCR revealed a significant decrease in the expression of C/EBPα, C/EBPβ, and PPARγ mRNA, following the treatment with tangeritin. Western blot analysis also presented similar results at a protein level. Therefore, we concluded that tangeritin inhibits adipogenesis via the down-regulation of C/EBPα, C/EBPβ, and PPARγ mRNA and protein expression in 3T3-L1 cells.

Key words: Tangeritin; 3T3-L1; C/EBPα; C/EBPβ; PPARγ; Adipogenesis

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