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Cycloastragenol, a Triterpene Aglycone Derived from Radix astragali, Suppresses the Accumulation of Cytoplasmic Lipid Droplet in 3T3-L1 Adipocytes (Abstract)

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Cycloastragenol, a triterpene aglycone derived from *Radix astragali*, suppresses the accumulation of cytoplasmic lipid droplet in 3T3-L1 adipocytes

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Cycloastragenol (CAG), a bioactive triterpenoid sapogenin isolated from the Chinese herbal medicine *Radix astragali*, was reported to promote the phosphorylation of extracellular signal-regulated protein kinase (ERK). Here we investigated the effect of CAG on adipogenesis. The image-based Nile red staining analyses revealed that CAG dose dependently reduced cytoplasmic lipid droplet in 3T3-L1 adipocytes with the IC₅₀ value of 13.0 μ M. Meanwhile, cytotoxicity assay provided evidence that CAG was free of injury on HepG2 cells up to 60 μ M. In addition, using calcium mobilization assay, we observed that CAG stimulated calcium influx in 3T3-L1 preadipocytes with a dose dependent trend, the EC₅₀ value was determined as 21.9 μ M. There were proofs that elevated intracellular calcium played a vital role in suppressing adipocyte differentiation. The current findings demonstrated that CAG was a potential therapeutic candidate for alleviating obesity and hyperlipidemia.