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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 μM. Meanwhile, cytotoxicity assay provided evidence that CAG was free of injury on HepG2 cells up to 60 μM. 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 μM. 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.