

Association of Globular β -Actin with Intracellular Lipid Droplets in Rat Adrenocortical Cells and Adipocytes

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摘要

Abstract

Proteins located on the surface of lipid droplets may mediate intracellular lipid metabolism. In the present study, immunofluorescent staining and polyacrylamide gel electrophoresis demonstrated that actin (43 kD) is associated with isolated intracellular lipid droplets of rat adrenocortical cells and adipocytes. Two-dimensional gel electrophoresis and immunoblot analysis further confirmed that the lipid droplet-associated actin is the beta isoform. In cultured adrenocortical cells, stress fibers and the surface of intracellular lipid droplets were labeled with anti-beta-actin monoclonal antibody, whereas FITC-phalloidin staining did not mark the rim of lipid droplets. The present results provide the first morphological evidence that globular beta-actin is associated with intracellular lipid droplets. This significant association of actin with the surface of lipid droplets suggests that beta-actin might be involved in the regulation of intracellular lipid metabolism, particularly providing insight into the important transport of lipid constituents.