Curcumin is not a ligand for peroxisome proliferator-activated receptor-γ

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Abstract

Curcumin, a compound found in the spice turmeric, has been shown to possess a number of beneficial biological activities exerted through a variety of different mechanisms. Some curcumin effects have been reported to involve activation of the nuclear transcription factor peroxisome proliferator-activated receptor-γ (PPAR-γ), but the concept that curcumin might be a PPAR-γ ligand remains controversial. Results reported here demonstrate that, in contrast to the PPAR-γ ligands ciglitazone and rosiglitazone, curcumin is inactive in five different reporter or DNA binding assays, does not displace [3H]rosiglitazone from the PPAR-γ ligand-binding site, and does not induce PPAR-γ-dependent differentiation of preadipocytes, while its ability to inhibit fibroblast-to-myofibroblast differentiation is not affected by any of four PPAR-γ antagonists. These multiple lines of evidence conclusively demonstrate that curcumin is not a PPAR-γ ligand and indicate the need for further investigation of the mechanisms through which the compound acts.

References


