

Induction of HSP70 gene expression by modulation of Ca⁺² ion and cellular p53 protein by curcumin in colorectal carcinoma cells.

陳彥州

Chen YC;KuoTC;Shol-Yn Lin-Shiau and Lin JK

Abstract

Curcumin (diferuloyl methane) is the major active yellow pigment of turmeric and curry. Studies in recent years have indicated that curcumin is a potent inhibitor of the initiation and promotion of chemical carcinogen-induced skin carcinogenesis in mice. When COLO205 colorectal carcinoma cells were treated with curcumin (60 microM), the appearance of apoptotic DNA ladders was delayed about 5 h, and G1 arrest was detected. Further analysis of the endonuclease activities in these cells revealed that the activity of Ca(+2)-dependent endonuclease in COLO205 cells was profoundly inhibited and that the extent of inhibition depended on the degree of calcium depletion. The reduction of p53 gene expression was accompanied by the induction of HSP70 gene expression in the curcumin-treated cells. These findings suggest that curcumin may induce the expression of the HSP70 gene through the initial depletion of intracellular Ca(+2), followed by the suppression of p53 gene function in the target cells.