

인체 방광암 T24 세포에서 Glycyrrhizae radix 열수추출물에 의한 apoptosis 유도

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Induction of apoptosis by water extract Glycyrrhizae radix in human bladder T24 cancer cells

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ABSTRACT

Glycyrrhizae radix is one of the most frequently prescribed ingredients in Oriental medicine, and G. radix extract has been shown to exert anti-cancer effects. However, the cellular and molecular mechanisms of apoptosis by G. radix are poorly defined. In the present study, it was examined the biochemical mechanisms of apoptosis by water extract of G. radix (WEGR) in human bladder T24 cancer cells. It was found that WEGR could inhibit the cell growth of T24 cells in a dose-dependent manner, which was associated with the induction of apoptotic cell death, as evidenced by the formation of apoptotic bodies, DNA fragmentation and increased populations of annexin-V positive cells. The induction of apoptotic cell death by WEGR was connected with an up-regulation of pro-apoptotic Bax protein expression and down-regulation of anti-apoptotic Bcl-2 and Bcl-xL proteins, and inhibition of apoptosis family proteins (XIAP, cIAP-1 and cIAP-2). In addition, apoptosis-inducing concentrations of WEGR induced the activation of caspase-9, an initiator caspase of the mitochondrial-mediated intrinsic pathway, and caspase-3, accompanied by proteolytic degradation of poly (ADP-ribose)-polymerase. WEGR also induced apoptosis via a death receptor-mediated extrinsic pathway by caspase-8 activation, resulting in the down-regulation of total Bid and suggesting the existence of cross-talk between the extrinsic and intrinsic pathways. Taken together, the present results suggest that WEGR may be a potential chemotherapeutic agent for the control of human bladder cancer cells.

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