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The Mechanisms of Apoptos Induced by Celastrol from *Tripterygium regelii* in HT-29 Human Colon Cancer Cells

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This study was performed to elucidate the effects of celastrol, major biologically active components of *Tripterygium regelii* on the induction of apoptosis and the mechanisms in HT-29 human colon cancer cells. Celastrol decreased viable cell numbers in dose- and time-dependent manners by inducing cell cycle arrest and apoptotic cell death, via apoptotic bodies, internucleosomal DNA fragmentation and an increased sub-G1 phase. Apoptosis induced by celastrol is associated with the activation of initiator caspase-8, and -9, and the effector caspase-3. In the present study, celastrol were found to stimulate Bid cleavage, indicating that the apoptotic action of caspase-8-mediated Bid cleavage leads to the activation of caspase-9. Celastrol decreased the expression of the anti-apoptotic protein Bcl-2, and increased the expression of the pro-apoptotic protein Bax. We also found that celastrol increased the expression of AIF, a caspase-independent mitochondrial apoptosis factor, in HT-29 cells, and induced DNA fragmentation and chromatin condensation. These results indicate that celastrol from *Tripterygium regelii* inhibit cell proliferation and induce apoptosis in HT-29 cells, which may be mediated via both caspase-dependent and caspase-independent pathways.

Key words: *Tripterygium regelii*, celastrol, apoptosis, HT-29

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Anti-Proliferation Effects of Methanol Extracts from *Cornus officianalis* in the RC-58T/SA#/4 Cells Treated with Environmental Hormones

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Anti-Proliferation Effects of Methanol Extracts from *Cornus officianalis* were investigated in the RC-58T/SA#/4 cells treated with environmental hormones. The proliferation was decreased in dose-dependent manner at the concentration over 500 ug/mL in the RC-58T/SA#/4 cells treated with extract of various concentrations (1, 10, 100, 500, 1000 ug/mL). The environmental hormones such as dioxin and bisphenol increased the growth of RC-58T/SA#/4 cells in the charcoal-treated FBS (cFBS) medium. The proliferation was the highest at 1nM and 0.1uM that tested dioxin and bisphenol concentration, respectively. Methanol extract was showed to inhibit the proliferation in dose-dependent fashion at tested concentrations (10, 100, 300, 500 ug/mL) in the RC-58T/SA#/4 cells added environmental hormones. The anti-proliferation was the highest at 500ug/mL that tested methanol extract concentration. The chromatin condensation and apoptotic body were examined in the methanol extract treated cells cultured with the cFBS medium added environmental hormones. These results suggest that methanol extract decreased the proliferation in RC-58T/SA#/4 cells added environmental hormones.

Key words: *Cornus officianalis*, methanol extract, cytotoxic activity, environmental hormones