[P-6]

Role of Reactive Oxygen Species In Capsaicin-Induced Apoptosis in MBT-2 Murine Bladder Cancer Cells

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Capsaicin has been reported to induce apoptosis in various cancer cells. However, its effect on bladder cancer cells has not been studied. In this study, we investigated whether capsaicin induces apoptosis in murine orthotopic bladder cancer MBT-2 cells and reactive oxydative species(ROS) are involved in capsaicin-induced apoptotic process. On MTT assay, capsaicin showed obvious cytotoxic effects on MBT-2 cells in a dose dependent manner. Capsaicin also reduced the percentage of cells in the G1 phase whereas it increased the population of G2/M phase cells. In addition, we found that capsaicin induced apoptosis of MBT-2 cells in a time- and dose-dependent manner. Moreover, capsaicin suppressed basal generation of intracellular ROS levels and lipid peroxidation in MBT-2 cells in a time dependent manner.

Taken together, our results suggest that capsaicin can act as an antitumor agent for bladder cancer through induction of apoptosis and decreasing reactive oxidative species which play a critical role in the carcinogenic process.

Keyword : reactive oxygen stress, apoptosis, capsaicin