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Mechanism of taurine-induced apoptosis in human colon cancer cells

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Abstract

Taurine (Tau) has been shown to possess cancer therapeutic effect through induction of apoptosis, while the underlying molecular mechanism of its anti-cancer effect is not well understood. PUMA (p53-upregulated modulator of apoptosis) plays an important role in the process of apoptosis induction in a variety of human tumor cells in both p53-dependent and -independent manners. However, whether PUMA is involved in the process of Tau-induced apoptosis in cancer cells has not been well studied. In the present study, we treated human colorectal cancer cells HT-29 (mutant p53) and LoVo (wild-type p53) with different concentrations of Tau, which led to the repression of cell proliferation and induction of apoptosis in both cell lines. Meanwhile, we also observed the increased expression of PUMA and high Bax/Bcl-2 ratios. To determine the role of PUMA in Tau-induced apoptosis, we used small interfering RNA interference to suppress PUMA expression. As a result, apoptosis was decreased in response to Tau treatment. All these results indicated that PUMA plays a critical role in Tau-induced apoptosis pathway in human colorectal cancer cells. Demonstration of the molecular mechanism involved in the anti-tumor effect of Tau may be useful in the therapeutic target selection for p53-deficient colorectal cancer.

Key words taurine human colon cancer cell PUMA

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