

学 位 論 文 の 要 旨

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主論文の題名

Taurine exhibits an apoptosis-inducing effect on human nasopharyngeal carcinoma cells through PTEN/Akt pathways in vitro

主論文の要旨

Nasopharyngeal carcinoma (NPC) is a distinctive type of head and neck malignancy with a high incidence in southern China. Taurine shows an anti-cancer effect on a variety of human tumors. However, the underlying molecular mechanism of its anti-cancer effect on NPC is not well understood. To clarify these anti-cancer mechanisms, we performed cell viability and colony formation assays. Apoptotic cells were quantified by flow cytometry. The expression levels of apoptosis-related proteins were evaluated by Western blot. The results showed that taurine markedly inhibited cell proliferation in NPC cells, but only slightly in an immortalized normal nasopharyngeal cell line. Taurine suppressed colony formation and induced apoptosis of NPC cell lines in a dose-dependent manner. Taurine down-regulated the anti-apoptotic protein Bcl-xL (B-cell lymphoma-extra large) and up-regulated the pro-apoptotic protein BAX (Bcl-2-associated X protein) and a major endoplasmic reticulum (ER) chaperone, GRP78 (G-protein coupled receptor 78). These results suggest the involvement of mitochondrial and ER stress signaling in apoptosis. Taurine increased the levels of PTEN (phosphatase and tensin homolog deleted on chromosome 10) and p53, and reduced phosphorylated Akt (protein kinase B). In conclusion, taurine may inhibit cell proliferation and induce apoptosis in NPC through PTEN activation with concomitant Akt inactivation.