

Cinnamaldehyde induces a decrease in the mitochondrial membrane potential in human leukemia HL-60 cells

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In the previous report, we found that cinnamaldehyde, isolated from the stem bark of Cinnamomum cassia, induced cytotoxicity and apoptosis. These effects were completely prevented by pretreatment with antioxidant N-acetyl-L-cystein (NAC). Cinnamaldehyde activated various caspases, such as caspase-3, caspase-8 and caspase-9 activities. Now we are further investigating the relationship with the mitochondrial membrane potential and the release of cytochrome-c from mitochondria into the cytosol. We measured $\Delta\Psi_m$ using the fluorescent probe DiOC6 and monitored it using flow cytometry. Mitochondrial release of cytochrome c was conformed by western blotting. Furthermore, we are undergoing the structure-activity relationship with various cinnamaldehyde derivatives.

[PC1-17] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Antioxidant Effect of Kombucha Extract on Normal Human Diploid Fibroblasts (HDFs)

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Kombucha broth (KB) is a traditionally known remedy in the far east countries. Although many physiological benefits of KB have been reported to date, enough experimental evidences have not been presented yet. Therefore, we attempted to investigate the antioxidant effects on Human Diploid Fibroblasts (HDFs) which was treated with KB extract. Exponentially growing early-passage HDFs were treated with 1 mM Hydrogen Peroxide (H_2O_2) to induce oxidative stress. When the cells get stressed, morphological and biological changes were observed. Following external stress to the cells, incubation with the KB extract for 48hrs was performed. The enzymatic activities of Superoxide Dismutase (SOD), Glutathione Peroxide (GPx) and Catalase (CAT) on H_2O_2 -treated cells were significantly higher than those on the non-treated control. However, in the case of H_2O_2 treated HDFs followed by incubation with KB extract the enzymatic activities were sharply reduced in comparison with the only H_2O_2 -treated cells. In these data, we draw the following conclusion that KB extract is a possible material to be utilized for the anti-oxidant agent.

[PC1-18] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

EFFECTS OF GENISTEIN ON EXPRESSION OF COX-2 AND ACTIVATION OF ERK 1/2 INDUCED BY PHORBOL ESTER AND TNF- α IN CULTURED HUMAN BREAST EPITHELIAL CELLS

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Genistein has been shown to exert protective effects against chemically induced carcinogenesis in animals as well as malignant transformation in cultured cells, but molecular mechanisms of its chemopreventive or chemoprotective activities remain largely unresolved. In the present study, we have investigated the effects of genistein on induction of cyclooxygenase-2 (COX-2) that plays an important role in the pathophysiology of carcinogenesis as well as in cellular response to inflammatory stimuli. 12-O-Tetradecanoylphorbol-13-acetate (TPA) or TNF- α caused dose- and time-dependent increases in COX-2 expression and prostaglandin E_2 (PGE_2) production in MCF10A cells, which was inhibited by genistein pretreatment. Inhibition of PGE_2 production by genistein appeared to be attributable to its suppression of both catalytic