Renal dipeptidase (RDPase, EC 3.4.13.19), an ectoenzyme of renal proximal tubules, is covalently bound to outer leaflet of lipid bilayer via glycosylphosphatidylinositol (GPI)-anchor. The biological role of RDPase was suggested as the hydrolysis of dipeptide into free-amino acids before renal reabsorption. Chitin is a major component of the shells of crustacea such as crab, shrimp and crawfish. This study was investigated to examine the effect of chitosan, a deacetylated derivative of chitin which is the second most abundant natural biopolymer, on RDPase release from renal proximal tubules. Porcine proximal tubules were prepared with the protocol of Taub et al (1990) and were treated with chitosan (0.01, 0.1 and 1%) for 30 min at 37℃ followed by centrifugation (18000g, 5min). The activity of released RDPase was assayed according to the fluorometric method of Ito et al (1984). It was observed that the RDPase release was increased as a function of chitosan concentration, up to approximately 2.5-folds at 1% of chitosan. Although we do not understand the mechanism of this increase, the results suggest that chitosan may elevate the renal function related to reabsorption of amino acids.

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

Antiplatelet Effect of Green Tea Catechins may be due to Inhibition of PLA2 Activity

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Green tea is the dried young leaves of Camellia sinensis, also known as thea sinensis L., an infusion of which is widely consumed as a beverage. Green tea constituents, especially green tea catechins (GTC), exhibit a range of pharmacologic effects including anticarcinogenic activity and prevention of cardiovascular diseases. We have previously reported that GTC showed antithrombotic activity and that this antithrombotic action might be due to antiplatelet rather than anticoagulation effects. In this study the effect of GTC on the arachidonic acid (AA)pathway was investigated. GTC inhibited the platelet aggregation induced by AA (50 μ M) in a concentration-dependent manner with IC_{50} value of 0.58±0.02 mg/ml. GTC inhibited the phospholipase A_2 (PLA_2) activity in a concentration-dependent manner. Pretreatment of GTC decreased the collagen-induced AA release in [^{3}H]-AA incorporated platelet by an inhibition of the PLA_2 activity. GTC also inhibited the formation of TXA_2 and release of ATP caused by AA.
These results suggest that the antiplatelet mechanism of GTC may be mediated by inhibition of PLA_2 activity which leads to the AA release, TXA_2 formation and inhibition of ATP release.

[PC1-15] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Essential Oils Inhibit the LPS-Induced Production of Nitiric Oxide in Raw 264.7 Macrophages

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We investigated the effect of various essential oils on nitric oxide(NO) production in murine macrophage-like, RAW 264.7 cells. NO is important mediator in the pathogenesis of inflammatory disease. Our study was undertaken to screen the inhibition of NO production by essential oils isolated from various plants in RAW 264.7 cell. Two essential oils from Ligularia fischeri and Chrysanthemum zawadskii significantly inhibited the LPS-induced NO and prostaglandin E2(PGE2) generation in Raw 264.7 cells. Furthermore, protein expression level of iNOS and COX-2 was then reduced in concentration-dependent manner. We are further investigating the mRNA level by RT-PCR and NF-κB regulation.

[PC1-16] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

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