Ginsan, a new polysaccharide isolated from Panax ginseng, has been previously reported as a good immunomodulator. In this study, we investigated the protective effect of Ginsan against a lethal sepsis induced by Staphylococcus aureus infection. The survival rate of mice treated with Ginsan 24 h prior to S. aureus infection was 80% whereas PBS-treated mice showed 20% of survival in the same infection. The numbers of CFU of S. aureus recovered from the blood, kidney or spleen of the Ginsan-treated mice was much less than that recovered from the organs of the control mice. However, the survival of Ginsan-treated mice was significantly declined when mice were treated with NO inhibitor, L-NAME. In addition, the treatment of ginsan at 100ug/ml cultured with heat killed S. aureus increased the nitric oxide production on RAW264.7 cells 2-fold over than that of control. These results imply that the protective effect of Ginsan is partially due to the enhancement of the NO-dependent antimicrobial cytotoxicity. Furthermore, the levels of proinflammatory cytokines such as TNF-α, IL-1β, IFN-γ, IL-12 and IL-18 from infected mice were remarkably suppressed in Ginsan-treated group compared to the PBS-injected group.
Therefore, these results suggest that Ginsan may be developed as an effective antimicrobial or antiseptic agent in practice.

Poster Presentations - Field C1. Biochemistry

[PC1-1] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Modulation of Cytochrome P450 1B1 Expression by A Stilbene Analog and its Effect on the Sensitivity to Anticancer Agents in Human Cancer Cells.

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We have previously shown that 2,3',4,5'-tetramethoxystilbene(TMS) from synthetic *trans*-stilbene analogues, is one of the most potently selective inhibitor of recombinant human cytochrome P450 1B1 in vitro. In the present studies, the effects of TMS on the expression of cytochrome P450 1B1 were investigated in human cancer cell lines such as MCF-7 and HL-60. TCDD-stimulated P450 1B1 protein and mRNA expression was significantly suppressed by TMS in a dose-dependent manner. It was found that there exists a correlation between P450 1B1 suppression and the cytotoxicity of TMS in human cancer cells. In human cancer cells, the cytotoxic effect of anticancer drugs such as paclitaxel, docetaxel or etoposide was enhanced in the presence of TMS. The synergic effects of co-treatment of anticancer drugs with TMS were significant when the cells were incubated with TCDD. We suggest that the metabolic activation of TMS to more cytotoxic products may be occurred in human cancer cells by the treatment with TCDD. Taken together, our results indicate that TMS is a strong modulator of P450 1B1 gene expression as well as a potently selective inhibitor of P450 1B1. The ability of TMS to increase cytotoxic effect of anticancer drugs may contribute to its usefulness for cancer chemotherapy.

[PC1-2] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Anti-inflammatory effect of indole compound, IND-6 in LPS-stimulated RAW 264.7 murine macrophage cell line

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Nitric oxide (NO) and prostagladins(PGs) produced by inducible nitric oxide synthase(iNOS) and cyclooxygenase(COX-2) are known as inflammatory mediator. Modulation of these enzymes, induced by many stimuli(LPS, IFN-gamma, TNF-alpha, phorbol ester, etc), is a potent strategy as treatment of inflammatory diseases.
Treatment of murine macrophage RAW 264.7 cell line with indole compound(IND-6) markedly reduced lipopolysacchride(LPS) stimulated NO production in a concentration-related manner. In this point of view, we tested the effect of various indole compounds in LPS-stimulated RAW 264.7 murine macrophage cell line. Western blot analysis and RT-PCR showed that IND-6 inhibited of iNOS and COX-2 proteinand mRNA expression through the attenuation of IkappaB-alpha degradation induced by LPS. Moreover, we investigated the effect of this compound on pro-inflammatory cytokine TNF-alpha production.

[PC1-3] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Antioxidative effect of flavonol quercetin and hydrocaffeic acid against a oxidative stress on B16F10 murine melanoma cell of pretreated with hydrogen peroxide

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In this study, we investigated the effect of inhibition of proliferation and antioxidant effect on B16F10 murine melanoma cell. Also, we examined by MTT(3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay and intracellular reactive oxygen intermediate levels and the levels of catalase(CAT), superoxide dismutase (SOD), and glutathione peroxidase(GPX) an adaptive response of oxidative stress on B16F10 murine melanoma cell of pretreated with hydrogen peroxide. Quercetin and hydrocaffeic acid were used 25uM, 50uM, 100uM, 200uM,concentration. From this result, quercerin and hydrocaffeic acid demonstrated a dose-dependent reduction in the effect of inhibition of proliferation and increased enzymic antioxidant levels. It may be useful by reducing or preventing an oxidative stress damage.

[PC1-4] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Inhibitory effects of synthetic isoflavone compounds on IL-5 bioactivity

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Eosinophilic inflammation is the main histological correlate of airway hyperresponsiveness and tissue injury in the pathogenesis of bronchial asthma. Interleukin (IL)-5 appears to be one of main proinflammatory mediators that induce eosinophilic inflammation. Allergic IL-5-deficient mice do not generate eosinophilia in the bone marrow, blood or lung in response to allergen provocation. However, airway instillation of recombinant IL-5 to the allergic IL-5-deficient mice