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Flavonoids from plant origin show anti-inflammatory activity in vitro and in vivo. In addition to inhibition of inflammation-associated enzymes such as cyclooxygenases and lipoxygenases, they have been found to regulate the expression of inflammation-associated proteins from in vitro experiments. In order to prove in vivo behavior and the potential for beneficial use against inflammatory skin disorders, the effect of wogonin (5,7-dihydroxy-8-methoxyflavone) on in vivo expression of several inflammation-associated genes was examined in the intact as well as in the inflamed mouse skin by reverse transcriptase-polymerase chain reaction analysis. When applied topically on the intact skin, only a high dose treatment of wogonin (1000 mg/ear/3 days) slightly increased cyclooxygenase-1 and fibronectin m-RNA. On the other hand, wogonin at the doses of 250 – 1000 mg/ear/3 days potently lowered m-RNA levels of cyclooxygenase-2 and tumor necrosis factor-a with less effect on intercellular adhesion molecule-1 and interleukin-1b in a sub-chronic skin inflammation model of tetradecanoylphorbol 13-acetate-induced ear edema (multiple treatment). The decrease of prostaglandin E_2 concentration (27.3 – 34.3%) was concomitantly observed in the wogonin-treated groups. A similar effect was also observed in an acute inflammation model of arachidonic acid-induced ear edema. From the present study, wogonin was proved to differentially regulate the expression of inflammation-associated genes in vivo and to become a useful therapeutic agent for skin inflammatory diseases mainly due to its modulation of the expression of proinflammatory molecules.

[PC1-37] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

The roles of ceramide on the cellular signal transduction in RAW 264.7 murine macrophages activated with lipopolysaccharide and interferon-gamma.

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Ceramide acts as a lipid second messenger in the cellular signal transduction and is involved in mediating a variety of cell functions such as proliferation, differentiation, growth arrest, and apoptosis. In the present study, we have investigated the effect of ceramide on cellular cytotoxity and reactive oxygen species (ROS) to understand the relationship between them. Ceramide treatment significantly increased cell death in RAW 264.7 murine macrophages activated with lipopolysaccharide (LPS) and interferon-g (IFN-g). Interestingly, cotreatment with C_6-ceramide and LPS/IFN-g highly enhanced the production of ROS in cells. It is also shown that the production of NO and iNOS are inhibited by ceramide treatment in activated RAW cell, but the level of COX-2 was unaffected. The elevated level of ROS production was reduced by the presence of an NO donor S-nitroso-N-acetylpenicillamine (SNAP). These findings illustrate that the enhanced ROS generation may modulate the ceramide-mediated apoptosis and the cross-talk between NO and ROS-dependent transduction pathway will be possible. Understanding of the detailed mechanism will elucidate the pathway of ceramide-mediated cell death in murine macrophages.

[PC1-38] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Inhibition of nitric oxide and TNF-α production by propenone compound through blockaded of NF-κB activation in cultured murine macrophages

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Lipopolysaccharide (LPS)-stimulated macrophages produced a large amounts of nitric oxide (NO) by inducible nitric oxide synthase (iNOS). This is an important mechanism in macrophages-induced septic shock and inflammation. In the present study, we tested a synthetic propenone compound, 1-furan-2-yl-3-pyridin-2-yl-propenone (FPP-3) for its ability to inhibit the production of tumor necrosis factor-a (TNF-α) and an inducible enzyme, iNOS, in the LPS-stimulated murine macrophage-like cell line, Raw264.7. FPP-3 consistently inhibited nitric oxide (NO) and TNF-α αproduction in a dose dependent manner, with IC_{50} values of 10.0 and 13.1 μM, respectively. Western Blotting probed with specific anti-iNOS antibodies showed that the decrease in the quantity of the NO product was accompanied by a decrease in the iNOS

protein level. In cells transiently transfected with nuclear facto-kB (NF-κB) promoter-luciferase reporter construct, this compound clearly inhibited the LPS-stimulated NF-kB activation. Moreover, this compound inhibited IκB-αdegradation in a concentration and time-dependent manner. These results indicate that FPP-3 inhibit NO production via inhibition of degradation of IκB-αthrough a NF-κB activation.

[PC1-39] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Anti-Inflammatory action and Cellular Toxicity of Resina Pini on Human Gingival Fibroblast

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This study was carried out to evaluate the cytotoxicity and anti-inflammatory effects of Resina Pini on cultured human gingival fibloblasts. We carried out a study of cytotoxic effects of Resina Pini on cultured cells by MTT assay. Various treatments on Resina Pini reduced its toxicity on cultured cells in order of natural Resina Pini, water extracted mixture of Resina Pini and Ramus Mori Albae and recrystalized Resina Pini. However, Resina Pini showed harmless levels of cytotoxicity to cultured human gingival fibroblast.Anti-oxidative activity was evaluated by DPPH radical scavenging test, and PGE_2 by PGE_2 EIA system. Resina Pini suppressed productions of free radicals and PGE_2, which causes tissue inflammation and clinical pain. Interestingly, Resina Pini extract samples displayed superior inhibitory activity upon PGE_2 synthesis, compared to contrast group aspirin. This fact may suggest safe and efficient periodontal hygienic and therapeutic uses of Resina Pini.

[PC1-40] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Differentiation and authentication of Panax ginseng (Korea and China), Panax quinquefolius, and development of genetic marker by AFLP analysis.

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Panax ginseng is one of the most important medicinal plant in the Orient. The international trade of ginseng is increasing yearly. The disguise of Chinese and American ginseng into Korean ginseng became a problem in recent years in Korea and an abroad. Obviously, an effective method of authentication of Korean ginseng from others at a DNA level, is necessary for the healthy development of the ginseng market. In order to develop convenient and reproducible methods for the identification of Korean ginseng, amplified fragment length polymorphism (AFLP) analysis was applied within Panax species (Korean cultivatied and wild ginseng, Chinese wild ginseng, American cultivatied and wild ginseng). The genetic distance coefficients between the P. ginseng and P. quinquefolius were high, ranging from 0.573 to 0.692, whereas samples of P. ginseng (cultivatied and wild type) from the different area in Korea and China were very low, ranging from 0.056 to 0.164. By detailed AFLP analysis, some important different bands between wild type of P. ginseng from Korea and China were obtained. These results support that this approach could be applied to distinguish Korean ginseng (Panax ginseng) from others (Chinese and American ginseng) and to authenticate cultivatied and wild ginseng at the molecular level.

[PC1-41] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Antioxidative effect and anti-apoptosis effect of extract from Betula platyphylla var. japonica

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Kyung Hee University

The antioxidant and anticancer properties of a medicinal plant, Betula platyphylla var. japonica were