1 uM, and exhibited an IC50 value of 5 uM on the PMA-induced production of superoxide anions. Building moieties of QGR also showed inhibitory effects with IC50 values of 3 uM by quercetin and 82-89 uM by quercitrin and gallic acid on the production of superoxide anions in PMA-stimualted murine macropahges Raw264.7. Quercetin has been reported to show inhibitory effects on several proinflammatory mediators, and its glycosides reduced the anti-inflammatory potency. Quercetin showed potent inhibitory effect on the production of superoxide anions. Similarly, inhibitory potency on the production of superoxide anions was reduced by quercitrin, but retained by QGR, a quercitrin gallate.

[PC1-14] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Acteoside induce antiproliferation and differentiation on HL-60, Human leukemia cell line, by cell cycle arrest.

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We investigated the in vitro effect of Acteoside , phenylpropanoid glycosides, is a natural product isolated from ···, on proliferation, differentiation and cell cycle regulation in human promyelocytic HL-60 leukemia cells. Acteoside significantly inhibited the proliferation of HL-60 cells, with IC50 of about 30ug/ml. It was also found to be a potent inducer of differentiation in human leukemia derived HL-60 cells through the examination of differentiation markers, as assessed by the reduction of nitroblue tetrazolium, the increase in esterase activities and phagocytic activity, and the expression of CD14 and CD66b surface antigens. Because a hallmark of terminal differentiation is the result of irreversible arrest in the G0/G1 or G2/M phase of the cell cycle, we investigated the effect of acteoside on cell cycle progression. To address the mechanism of the antiproliferative effect of acteoside, we investigated the effect of acteoside on cell cycle-related proteins in HL-60 cells. Acteoside did not change the steady-state levels of CDK4 and cyclinD3, but decreased the level of CDK2, CDK6 and cyclin D1, cyclin D2 , cyclin E . Hypophosphorylation of Rb protein was increased. The protein level of p21,p27 and p16, CDK inhibitor, were markedly increased and the mRNA level of p21 was also increased. In addition, acteoside markedly enhanced the binding of p21 with CDK6 compared with untreated control cells. In conclusion, the onset of acteoside-induced differentiation of HL-60 is linked to a sharp up-regulation of p21 level and a decrease in CDK6 activities. This is the first report that acteoside potently inhibit the proliferation of human promyelocytic HL-60 cells via differentiation.

[PC1-15] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Antitumor activity of organic compounds isolated from Korean mistletoe

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Velutin and betulinic acid were isolated as a cytotoxic principle from the dichloromethane extract of Korean mistletoe (Viscum album var. coloratum) by repeated silicagel chromatography and recrystallization. In in vitro analysis of cytotoxic activity using NIH-3T3 cells, dichloromethane extract of Korean mistletoe was shown to be highly cytotoxic against tumor cells. And we

obtained active compound (reffered to VD-2 and VD-6) from the dichloromethane extract. IC50 of VD-2 and VD-6 was shown to be 75 uM and 18.8 uM, respectively. Also, they activated caspase-3 enzyme of NIH-3T3 cells during apoptosis. These results indicated that Korean mistletoe has highly cytotoxic compound, VD-2 and VD-6, against tumor cells, and the compounds were velutin and betulinic acid.

[PC1-16] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Sauchinone, a Lignan from Saururus chinensis, Inhibits Staurosporine-induced Apoptosis in C6 Rat Glioma Cells

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Neuronal apoptosis may contribute to the pathological neuronal loss in certain disease states such as neurodegenerative diseases. Staurosporine (ST), a nonselective protein kinase inhibitor, has been shown to induce apoptosis in a variety of cells including nerve cell lines. In this study, we investigated the neuroprotective effect of sauchinone, which is a unique lignan from Sauchinone Chinensis, on ST-induced apoptosis in C6 rat glioma cells. Here, we show that sauchinone attenuated ST-induced apoptosis of C6 glioma cells as evidenced by DNA fragmentation. We also provide evidence that the protective effect of sauchinone on ST-induced apoptosis involves a dose-dependent upregulation of an anti-apoptotic protein, Bcl-2. Mounting evidence reveals that the activation of caspases, especially caspase-3, triggers the apoptotic process. To examine the involvement of caspase-3 in the protective effect of sauchinone, we measured the activity of caspase-3 of ST-treated C6 cells upon sauchinone treatment. We show that sauchinone decreased the activity of caspase-3, suggesting that sauchinone protected C6 glioma cells from apoptosis by ST in a caspase-3-dependent manner.

[PC1-17] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Anticoagulant Activity of Acharan Sulfate In Vivo

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We previously reported that acharan sulfate from the African giant snail *Achatina fulica* showed the anticoagulant activity in vitro, but it was much less than that of heparin. In present study, the anticoagulant activity of acharan sulfate was investigated in vivo. Intravenous administration of acharan sulfate prolonged the clotting time (APTT) in mice and rats in a dose-dependent manner. Although the activity was low in rats, it could be maintained over 5 h after administration of AS (30mg/kg). In contrast, the activity of heparin (5mg/kg) was restored to the normal level at 3 h. In a thrombin-induced lethality model in mice AS (20 mg/kg) protected the lethality by 80 percent, while heparin (20 mg/kg) did not show any protective activity after 3.5 h of administration of drugs. We could also determine the plasma concentration of AS even 5 hours after administration to rats. These results show that the longer duration of AS in blood has a possibility to interact with coagulation factors. Further study is required for the study of anticoagulant and antithrombotic mechanism of AS in vivo.