

C- γ 1 (PLC- γ 1) and Akt cascade were also inhibited by luteolin. Luteolin-7-glucoside showed weak inhibition of PDGF-R β , ERK1/2, PLC- γ 1 and Akt cascade. The anti-proliferative effect of luteolin was reduced by the presence of a glucose. Taken together, these results suggest that the inhibition of vascular smooth muscle cell proliferation by luteolin and luteolin-7-glucoside may be mediated mainly by inhibition of PDGF- β receptor, which leads to the inhibition of downstream such as ERK1/2, PLC- γ 1 and Akt cascade.

[PA3-3] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Determination of Sulfur Dioxide in Herb Drugs

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This study was carried out to investigate sulfur dioxide in herb drugs.(Puerariae Radix, Lycii Fructus, Platycodi Radix, Dioscoreae Rhizoma, Mori Radicis Cortex, Nelumbo Seed, Paeoniae Radix, Remotiflori Radix, Astragali Radix, Polygonatum Rhizome) Experimental subjects included 105 cases of 10 species of herb drugs collected in Kyung-dong market from December in 2001 to February in 2002. Sulfur dioxide was determined by Optimized Monier-Williams method. In 65 cases(61.9%) of the 105 cases, we detected SO₂ over 10mg/kg. Sulfites were detected in 10 cases(100.0%) of Dioscoreae Rhizoma, 10 cases(100.0%) of Paeoniae Radix, 8 cases(72.7%) of Mori Radicis Cortex, 7 cases(70.0%) of Platycodi Radix, and 7 cases(70.0%) of Polygonatum Rhizome. In domestic 29 cases of 60 cases(48.3) were detected over 10mg/kg. Otherwise, 36 cases(80.0%) were in imported samples.

[PA3-4] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Heat Shock Protein 60 Is a Mg²⁺-dependent, Membrane-associated and Neutral Sphingomyelinase That Mediates TNF-alpha Signaling

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The hydrolysis of sphingomyelin (SM), known as the SM pathway, is induced by the activation of sphingomyelinase (SMase) to generate the second messenger ceramide, which plays a key role in cellular responses such as apoptosis, differentiation, senescence, and inflammation. Here, we identified a 60 kDa membrane-associated, neutral and Mg²⁺-dependent SMase, termed N-SMase ϵ , from mammalian brains, which was revealed as the heat shock protein 60 (HSP60) through cDNA cloning and mass spectrometrical analysis. This finding was further confirmed by using anti-HSP60 antibodies. Hsp60 gene transfection of human neuroblastoma cells produced a significant increase in N-SMase activity as well as a increase in protein levels. And both Hsp60-antisense and siRNA reduced significantly SMase activity in HEK293 cells. Also Hsp60-siRNA block ceramide generation by serum deprivation in HEK293 cells. Immunoblotting analysis showed that N-SMase ϵ exists as a majority in brain and localizes in cortical neurons. TNF- α stably enhanced the enzyme activity up to ~2-fold with parallel up-regulation of N-SMase ϵ , biphasic increase in ceramide and concomitant apoptosis in cortical neuron cells. Thus, HSP60 as N-SMase ϵ mediates TNF- α -induced neuronal apoptosis through the production of ceramide.

[PA3-5] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Saponin isolated from Platycodon grandiflorum induces cell cycle arrest in hepatic stellate cells

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Activation of hepatic stellate cell has been identified as a critical step in hepatic fibrogenesis and is regulated by several factors including cytokines and oxidative stress. In this study, we assayed effects of saponin (CKS), inulin (CKI) and oligo-sugars (CKO) isolated from *Platycodon grandiflorum* A. DC, changkil (CK) on experimental cell cycle arrest and apoptosis in hepatic stellate cell line (HSC-T6). CKS induced cell arrest at G₁. CKS also reduced intercellular reactive oxygen species and collagen synthesis in hydrogen peroxide-induced oxidative stress and acetaldehyde-stimulated collagen synthesis, respectively, in HSC-T6 cells. However, both CKI and CKO were no effects. CKS induced the sustained activation of the extracellular signal-regulated kinase induced the expression of p21^{Cip1/WAF1}, the cell cycle-dependent kinase inhibitor, and mediated cell growth arrest through the p53 transcription activator-dependent mechanism. In conclusion, the suppression of collagen synthesis by CKS may be due to an overriding of the cell cycle arrest. These results provide that hepatic stellate cell cycle arrest by CKS be useful in the theoretical basis for clinical approaches in therapies of liver fibrosis.

[PA3-6] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Effect of Cinnamon and Rhodiola rosea treatment on blood Glucose, Triglyceride, Total cholesterol and Glycohemoglobin in db/db mouse

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The purpose of this study is to investigate the effect of the samples on the blood levels of glucose, glycohemoglobin(HbA1c), total cholesterol and triglyceride. The samples have been used in the treatment of a type 2 diabetic animal model (C57B1Ksj db/db). The samples were administered orally before each meal for 6 weeks. Cinnamon dose was 50mg/kg/day, 100mg/kg/day, 150mg/kg/day and 200mg/kg/day, respectively. Rhodiola rosea dose was 50mg/kg/day, 100mg/kg/day, 150mg/kg/day and 200mg/kg/day, respectively. Overnight fasting and 30, 60, 90, 120 minutes postprandial blood levels of glucose were measured at 2 weeks intervals. The blood levels of HbA1c, total cholesterol, and triglyceride were measured after the supplements. After 6 weeks of supplements, the blood levels of glucose and HbA1c tended to decrease in all experimental groups. However, the changes in the blood levels of total cholesterol and triglyceride were not observed after the supplement. In conclusion, the present study has demonstrated that sample have a tendency to decrease 6 Week postprandial blood glucose levels and HbA1c.

[PA3-7] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Identification of Proteineous Biomarkers for Cadmium- and Ceramide- Induced Toxicity in Human Brain Cells through Display Proteomic Analysis

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Cadmium is an environmental pollutant and exhibits nephrotoxicity, hepatotoxicity and immunotoxicity. Recently, cadmium was found to induce DNA fragmentation, a biochemical hallmark of apoptosis, in cultured renal cells, hepatocytes and neuroblastoma cell. Therefore, the various toxicities of cadmium are thought to be caused by the induction of apoptosis. Lipids-derived pro-apoptotic ceramide has emerged as an important intracellular signaling molecule that mediates diverse cellular effects, of which programmed cell death, or apoptosis, has attracted significant interest. Although the biochemical mechanism by which ceramide triggers apoptosis is not fully understood, there are considerable lines of evidence that they are the key mediator of this response. In this study, we examined to the change of protein level in cadmium or ceramide-induced apoptosis using a high-resolution two-dimensional gel electrophoresis (2-D). The fifteen different proteins stained by Coomassie G, were identified by mass spectrometry analyses combined with peptide fingerprinting. Among them, vimentin exhibited marked accumulation in cadmium and ceramide-induced apoptotic cells. Our data show that vimentin could be a biomarker of cadmium and ceramide-induced cell death or a critical pathway to lead to the toxicity.