pretreatment of PD98059, a specific inhibitor of MEK (kinase immediately upstream of ERK) prevented 15-deoxy-PGJ2-induced increasing expression of phosphorylated ERK. This inhibitory effect correlated well with the inhibition of apoptosis-associated gene expression and apoptosis. These results suggest that PPAR-γ ligand, 15-deoxy-PGJ2 induce apoptosis of neuroblastoma cells through ERK pathway.

[PB3-10] [04/19/2002 (Fri) 10:00 - 13:00 / Hall E]

PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR GAMMA AGONIST 15-DEOXY-PROSTAGLANDIN J2 STIMULATES DIFFERENTIATION OF EMBRYONIC MIDBRAIN CELLS

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15-deoxy-Δ12,14-prostaglandin J2 (15-deoxy PGJ2), a cyclopentenone prostaglandin has various biological activities including anti-viral and anti-inflammatory activities. It has also been demonstrated that 15-deoxy PGJ2 induces differentiation of several cells such as adipocytes and macrophages. Moreover, PPAR-gamma antagonist inhibited cell differentiation of adipocyte. Recent study shows that PPAR-γ is expressed in certain central nervous system neuron. Our studies showed that 15-deoxy-PGJ2 stimulated differentiation of a dopaminergic differentiating pheochromocytoma 12 (PC-12) cells. The present study was therefore designated to determine whether 15-deoxy PGJ2 could stimulate the differentiation of *undifferentiated embryonic midbrain cell to dopaminergic midbrain neurons. Undifferentiated embryonic* midbrain cells were isolated from gestation 12-day embryos and were cultured with 15-deoxy PGJ2. 15-Deoxy PGJ2 stimulates neurite extension (a marker of cell differentiation) of embryonic midbrain cell with concomitant increase of the expression of neurofilament and PPAR-γ expression. The expression of neurofilament and PPAR-γ in the adult brain (post 13 day of brain) was much higher than in the midbrain of 12 or 17-day gestation embryos. This result shows that activation (expression) of PPAR-gamma could be involved in the neuronal cell differentiation.

Poster Presentations - Field B4. Immunology

[PB4-1] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Augmentation of cytokine production in murine macrophage cell line, RAW 264.7 by of Korean Propolis

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Monocytes and macrophages play a major role in defense mechanism of the host response to tumor, in part through the secretion of several potent products and macrophage cytokines. Monocytes and tissue macrophages produce at least two groups of protein mediators of inflammation, interleukin 1 (IL-1) and tumor necrosis factor (TNF). Recent studies emphasizes that TNF and IL-1 modulate the inflammatory function of endothelial cells, leukocytes, and fibroblasts. In this study, our work is directed toward studying the in vitro effects of Korean propolis on the ability to induce celluar and secretory responses in murine macrophage cell line, RAW 264.7. The production of the macrophage cytokines, IL-1 and TNF-α, by RAW 264.7 treated with Water Extract of proplis (WEP) was examined from 2.5 mg/ml up to 25 mg/ml with dose dependent manner. Nitric oxide (NO) production was also observed. Significantly, more NO was produced

when cells were exposed to combination of LPS and WEP. At high dose of WEP (50 to 100 mg/ml) which has been prescribed for antiiniflammatory and analgesic purpose showed inhibition of NO production in LPS-stimulated macrophage. Besides cytokine production, NO release, surface molecule expression and cell morphologic antigen expression were increased in response to the stimulation by WEP. These results suggested WEP had the ability to activate the differential immunomodulatory effect on macrophage secretory and cellular activities. Such effect of WEP might play a role in vivo in the process lading activation of macrophage in immune system.

[PB4-2] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Activation of a mouse macrophage cell line RAW 264.7 by Salicornia herbacea

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Salicornia herbacea is an annual herb growing in salt marshes and on muddy seashores. In Korea, *Salicornia herbacea* grows naturally in the western coast area. *Salicornia herbacea* has been used as a fork medicine as well as a seasoned vegetable. In fork medicine, *Salicornia herbacea* has been used to treat constipation, obesity, hypertension, hypotension, diabetes, asthma, arthritis and cancer. However, the biological mechanisms of these activities have not been characterized, nor the active components. The present study was set out to define the immunomodulatory activity of *Salicornia herbacea*. The juice of *Salicornia herbacea* was prepared from the whole plant by passage through a fine screen. High molecular weight substances, SH-Ex, were then prepared from the juice by addition of 3 volumes of ethanol. Immunomodulatory activities of the juice and SH-Ex were examined on a mouse macrophage cell line, RAW 264.7 cells. We found that the juice as well as SH-Ex stimulates cytokine production, nitric oxide release, expression of surface molecules, and phagocytosis in a dose dependent manner. The juice as well as SH-Ex also induced further differentiation of slightly adherent RAW 264.7 cell into strongly adherent macrophages. These results indicate that *Salicornia herbacea* contains immunomodulator(s) that induces activation of macrophages

[PB4-3] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Allergenecity Test of Genetically Modified Soybean Extract in Rat

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Antigenicity of genetically modified soybean was evaluated in male Sprague Dawley rats. To confirm the genetically modified soybean used in these studies, the polymerase chain reaction (PCR) was performed using the DNA isolated from the soybean. The PCR clearly showed that the samples used in the present studies were genetically modified. The non-genetically modified control beans showed no signal in the PCR. To evaluate the antigenicity of genetically modified soybean, the homogenized soybean samples were sensitized subcutaneously three times a week for three weeks. The doses of soybean were 0, 2 and 20 mg/kg in the protein basis. A week after the last sensitization, sera were isolated from individual animals. When the sera were injected intradermally on the clipped back of unsensitized rats with various dilutions, followed by a challenge with 20 mg/kg of soybean homogenates in the presence of 1% Evans blue, no sign of passive cutaneous anaphylaxis reaction was observed. In addition, when the sera were treated to the cultures of peritoneal mast cells, the histamine release was not increased when compared to the cultures treated with sera isolated from vehicle-treated control rats. The present results indicate that the genetically modified soybean might not be antigenic in male Sprague Dawley rats.

[PB4-4] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]