

showed significant inhibition of the activation of NF- $\kappa$ B after LPS stimuli in transfectant human SCC-13. The inhibitory effects ranged from 30 to 50% compared to the control group.

[PB4-4] [ 04/19/2001 (Thr) 15:30 – 16:30 / Hall 4 ]

**The effects of rutin, alginate and allicin on NO production and adhesion molecule expression by radiation in human endothelial cells**

Son EH<sup>o</sup>, Rhee DK, and Pyo S.

College of Pharmacy, Sungkyunkwan University, Suwon city, Kyunggi-do 440-746

Inflammation is one of the major consequences of radiation injury. This process is influenced by a number of factors, such as adhesion molecules expressed either on leukocytes or on endothelial cells (ECs), shear forces and molecules produced by ECs, and circulating blood cells. Since previous studies have shown that the production of NO and the ICAM-1 expression were increased in  $\gamma$ -ray exposed human umbilical vein endothelial cells (HUVEC), we investigated the effect of the various compounds (rutin, alginate and allicin) on the production of NO and cell-surface expression of adhesion molecules (ICAM-1, VCAM-1, E-selectin) in radiation-induced inflammatory state of HUVEC. After irradiated HUVEC were treated with various compounds for 4 days, NO production and the expression of adhesion molecules by HUVEC were assessed by colorimetric assay and ELISA, respectively. Our results demonstrated that rutin, alginate and allicin reduced radiation-induced ICAM-1 expression and E-selectin. In addition, NO production was reduced by rutin, allicin and alginate treatment on HUVEC. These data suggest that rutin, alginate, and allicin may be anti-inflammatory agents for the therapeutic potential in radiation-induced inflammatory response.

[PB4-5] [ 04/19/2001 (Thr) 15:30 – 16:30 / Hall 4 ]

**Activation of Immune response by production of cytokines , Interleukin 1(IL-1) and tumor necrosis factor(TNF- $\alpha$ ), in LPS- stimulated RAW 264.7 treated with aqueous extract of Korean Propolis**

Han SH, Sung KH, Choi SS, Yim DS, Lee SY, Ha NJ, Kim KJ

Department of Pharmacy, Sahmyook University, kimkj@syu.ac.kr, Seoul 139-742

An aqueous extract of Korean Propolis was assayed for immune responses. Propolis has been used for thousands of years in folk medicine for lots of purposes including immunostimulating and antibacterial properties made by honeybees from the buds and bark of certain trees and plants. 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 have emphasized that TNF and IL-1 modulate the inflammatory function of endothelial cells, leukocytes, and fibroblasts. Propolis synergistically augmented the production of TNF- $\alpha$ , IL-1 in the presence of LPS in murine macrophage cell line RAW264.7. The production of the cytokines IL-1 and TNF- $\alpha$  by macrophage treated with propolis(5%~20% of soup)was examined in dose dependent manner, but production of IL-1 decreased at high concentration( >25% of soup). These results suggest that propolis may function through macrophage activation.

[PB4-6] [ 04/19/2001 (Thr) 15:30 – 16:30 / Hall 4 ]

**Effect of Linarin ,The main compound of Chrysanthemum zawadskiion, LPS-induced TNF- $\alpha$  production in murine macrophage cell line RAW 264.7 cells.**

Han SH, Sung KH, Yim DS, Lee SY, Ha NJ, Kim KJ

Department of Pharmacy, Sahmyook University, kimkj@syu.ac.kr, Seoul 139-742

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 have emphasized that TNF and IL-1 modulate the inflammatory function of endothelial cells, leukocytes, and fibroblasts. The effects of linarin, the main compound from *Chrysanthemum zawadskii*, on the mouse macrophage cell line, RAW 264.7 cells, were therefore investigated. It was found that linarin could stimulate macrophage activation by the production of cytokines. The production of TNF- $\alpha$  by macrophage treated with linarin was examined in dose dependent manner. The production of IL-1, however, was not the case by this natural product. The herb of *Chrysanthemum zawadskii*, which is called Gu-Jul-Cho, has been used in traditional medicine for pneumonia, bronchitis, cough, common cold, pharyngitis, bladder-related disorders, women's diseases, gastroenteric disorders, and hypertension. These results suggest that linarin may function through macrophage activation.

[PB4-7] [ 04/19/2001 (Thr) 15:30 - 16:30 / Hall 4 ]

### IL-12 expression effects of macrophage by the lectin-conjugated praecoxin A

Han GS, Joo SS, Kim MS<sup>o</sup>, Kim HJ, Lee DI

Department of Immunology, College of Pharmacy, Chung-Ang University

It has been understood that in cytokines there is a IL-12, which acts as T-cell growth and differentiation factor, secreted from macrophage, which is a natural immune-response cell and where it attacks and destroy the target cells in response directly to an antigen. This research was designed to see the broad immune activity reaction such as in anti-virus and anti-HIV other than the direct anti-cancer activity by combining the praecoxin A having a specific anti-cancer activity of Ellagitamins, a hydrolytic tannin with many immune activities, with the wheat germ agglutinin(WGA) specifically binding to melanoma. For the analysis of IL-12 mRNA expression in vitro and in vivo, we added lectin 10 $\mu$ g/ml, praecoxin A 10 $\mu$ g/ml, lectin-conjugated praecoxin A 1, 10, 100 $\mu$ g/ml to macrophage and analyzed total RNA at 4, 8, 12, 24 hour after the incubation. It is expected to obtain the increase outcomes of IL-12 mRNA expression in lectin, praecoxin A and lectin-conjugated praecoxin A in accordance with the dose and the time but is not expected that the lectin-conjugated praecoxin would show much stronger increase outcomes than lectin or praecoxin A does.

[PB4-8] [ 04/19/2001 (Thr) 15:30 - 16:30 / Hall 4 ]

### Immune activity effects by the Lectin-conjugated praecoxin A

Han GS, Joo SS<sup>o</sup>, Kim MS, Kim HJ, Lee DI

Department of immunology, College of Pharmacy, Chung-Ang University

Lectin-conjugated praecoxin A is a compound that is combined the praecoxin A having a specific anti-cancer activity of Ellagitamins, a hydrolytic tannin with many immune activities, with the wheat germ agglutinin(WGA) specifically binding to melanoma. In order to see an immune activity other than anti-cancer activity of this compound, we have studied the IL-6 mRNA expression in cytokine (especially in proinflammatory), which is secreted by macrophage in vivo and in vitro. The analysis was done by using RT-PCR for IL-6 mRNA expression in the total RNA extracted from macrophage after the incubation for 4, 8, 12, 24 hours after adding the lectin-conjugated praecoxin A of 1, 10, 100