induction of Bax expression. The release of cytochrome c from mitochondria into the cytosol was increased in response to DMHS. Taken together, DMHS leads to apoptotic cell death through a caspase-dependent mechanism. Increased Bax expression and release of cytochrome c are important to apoptotic effect of DMHS in HL-60 cells.

[PC1-15] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

Possible roles of reactive oxygen species and Rac1 in capsaicin -induced apoptosis of H-ras-transformed breast epithelial cells

Kang HJ°, Kim MS, Lee EJ, Soh YJ1, Kim SH2 and Moon A

College of Pharmacy, Duksung Women's University; 1Graduate School of East-West Medical Science, Kyung-Hee University; 2Department of Pharmacology, KFDA

Efforts have been made to develop a chemoprevention strategy that selectively triggers apoptosis in malignant cancer cells. Capsaicin(trans-8-methyl-N-vanillyl-6-nonenamide), the major pungent phytochemical in red pepper, has been recently shown to exert anti-carcinogenic or chemopreventive properties. We have previously shown that capsaicin selectively induces apoptosis of H-ras transformed human breast epithelial cells (H-ras MCF10A) in which activation of c-Jun N-terminal protein kinase-1 (JNK-1) and deactivation of extracellular signal-regulated kinases (ERKs) may be involved. Since Ras-transformed fibroblasts were shown to produce reactive oxygen species (ROS) through a mechanism which is dependent of Rac1, we wished to further investigate on the capsaicin modulation of H-ras pathway and ROS generation for better understanding the mechanism of the selective chemopreventive effect of capsaicin. Here, we show that capsaicin treatment induce ROS generation in H-ras MCF10A cells. We also show that capsaicin-induced growth inhibition was significantly inhibited in H-ras MCF10A cells expressing a dominant negative Rac1 gene product (N17 rac1). These results suggest that Rac1 may be critical to the capsaicin-induced apoptosis and that Rac1 is a downstream effector of Ras in signal transduction pathway. Effects of capsaicin on TPA-induced NF-kappaB activation in these cells are currently being investigated.

[PC1-16] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

Biochemical Characteristics and Immunomodulating Effect of the Lectin from Allomyrina dichotoma.

Jung MY, Chung SR, Jeune KH

College of Science and *College of Pharmacy, Yeungnam University Kyongsan 712-749, Korea.

A new lectin from Allomyrina dichotoma (ADL) was purified by physiological saline extraction, ammonium sulfate fractionation, anion exchange column chromatography on DEAE Sephadex A-50 and gel filtration column chromatography on Sephadex G-200.
Several biochemical properties of this lectin were characterized and the results are as follow :
0.1M fraction of ADL from gel filtration column chromatography showed one band on SDS-PAGE.
A purified lectin agglutinated the erythrocytes of rabbit and human A, B, O, AB.
Agglutinability was relatively stable at basic pH, and was stable at temperature below 40℃. The lectin activity was not affected by some metal ions and chealating agent, EDTA.
The molecular weight of ADL was estimated to be 97,000 dalton by SDS-polyacrylamide gel electrophoresis.
The lectin's immunomodulating effect was measured as cytokine production from peripheral blood mononuclear cells(PBMC) by ELISA(enzyme linked immunosorbent assay).
1×106 cells/㎖ of PBMC were obtained from healthy volunteers and stimulated with ADL for various times(1, 4, 8, 24, 48, 72 and 96 hours). ADL was prepared as 0.3 of optical density. Assay for 5 cytokines (IL-1α, IL-2, IL-6, IFNγ and TNFα) production was measured and the highest cytokine secretion was demonstrated at 24 hours with IFNγ and at 4 hours with TNF-α.

These results suggest that ADL elicit detectable cytokines from PBMC.

[PC1-17] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

Costunolide Induces the Differentiation of Human Lukemia cells HL -60

Choi JH(1), Lee KT(1), Park JH(2), Park HJ(3)

College of Pharmacy(1), Medicine(2), Kyung Hee University, Seoul 130-701, Department of Botanical Resources(3), Sangji University, Wonju 220-702 Korea,

The present work was carried out to examine the effect of costunolide on the growth of several cell lines and the differentiation of human leukemia-derived cell line HL-60. Costunolide produced a potent antitumor activity in vitro against several tumor cells dependent on concentration. However, it showed less cytotoxicity on normal cells such as Macaccus rheus monkey kidney cells (MA-104) up to 200 M concentration. Costunolide was found to be a potent inducer of differentiation in human leukemia derived cell lines HL60 cell by examination of differentiation marker as assessed by the surface antigens of CD14 and CD66b, reducing nitroblue tetrazolium and measuring esterase activity. These events were accompanied by a decline in expression of the c-myc and p-tyr protein by 4 days costunolide treatment. These results suggest that costunolide induces differentiation in human leukemia cells lineage by altering the expression of this protein involved in differentiation.

[PC1-18] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]

Suppression mechanism of inducible nitric oxide synthase and cyclooxygenase -2 expression in RAW 264.7 macrophages by sesquiterpene lactones from Ainsliaea acerifolia

Shin SG[O], Yoon JW, Zee OP, Lee KR, Lee HY[*], Hong SY[§], Han JW, Lee HW

Lab. of Biochemistry, College of Pharmacy, Sungkyunkwan University. College of Medicine, Konyang University *. College of Life Science and Natural Resources, Sungkyunkwan University §

Nitric oxide (NO) and prostaglandin (PG), produced by inducible nitric oxide synthase (iNOS) and cyclooxygenase-2 (COX-2), respectively, act as a causative regulator in various inflammatory disease states. *Ainsliaea acerifolia* has been used in Korean traditional herbal medicine for its antipyretic, analgesic and anti-inflammatory properties. We investigated the molecular mechanism for the suppression of LPS/IFN-γ-induced NO and PGE_2 production in RAW 264.7 macrophages by sesquiterpene lactones, zaluzanin-C and estafiatone, which are isolated from *A. acerifolia*. Zaluzanin-C and estafiatone decreased NO production in LPS/IFN-γ-stimulated RAW 264.7 macrophages with an IC_{50} of about 6.61 μM and 3.80 μM, respectively. In addition, these compounds inhibited the synthesis of PGE_2 in LPS/IFN-γ-treated RAW 264.7 macrophages. Furthermore, treatment with zaluzanin-C and estafiatone led to a decrease in iNOS protein as well as mRNA expression levels. These effects appear to be due to inhibition of the binding activity of NF-κB, a transcription factor necessary for iNOS and COX-2 expression, because these compounds inhibited NF-κB activation. These results suggest that the ability of zaluzanin-C and estafiatone to inhibit iNOS and COX-2 gene expression through the inhibition of DNA-binding activity of NF-κB might be responsible, in part, for their anti-inflammatory effects.

[PC1-19] [10/20/2000 (Fri) 15:30 - 16:30 / [Hall B]]