protein as a result of MALDI-TOF mass analysis, several proteins were revealed as novel proteins to be functionally studied.

[PC1-26] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

A Study on the Effects of Brassica oleracea L. Fractions on the Membrane Fluidity of the Liposomal Phospholipid Membranes

Park YunJa°, Bae SongJa

Department of Food and Nutrition, Silla University

This research was designed to investigate the effects of Bassica oleracea L.(BO) fractions on the membrane fluidity of the liposomal phospholipid membranes. The sample BO was extracted and fractionated to six different types, methanol(BOM), hexane(BOMH), ethylether(BOMEE), etylacetate(BOMEA), butanol(BOMB) and aqueous(BOMA) fractions. The fluidity of dipalmitoylphosphatidylcholine(DPPC) liposomal membranes incorporated with BO fractions was measured by means of high-sensitivity differential scanning calorimetry(DSC). Compared to the other fractions of Brassica oleracea L., the BOMEE and BOMEA fractions markedly affected the thermotropic properties of DPPC liposomes, broadened and shifted the thermogrames of the transition to lower temperatures. The incorporation of the BOMEE and BOMEA in DPPC liposomes was preferentially located in the hydrophobic core of DPPC bilayers, where it reduced the lipid packing orderness in the gel state compared to it in the liquid-crystalline state.

[PC1-27] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Alteration of Cellular Adhesion Molecules during Aging and Their Modulation by Calorie Restriction

Zou Yani°, Kim YouJung, Kim JiYoung, Kang DaeYoen, Kim NamDeuk, Lee KyungHee, Chung HaeYoung

College of Pharmacy, Pusan National University, Busan 609-735, Korea; Department of Cosmetology, Pusan Women's College, 614-734, Busan, Korea

Expressions of cellular adhesion molecules (CAMs) are closely related to the formation of early atherosclerosis, an age-dependent vascular disorder. However, previous research provided only limited and conflicted reports on age-related alterations of CAMs'expressions and even much less is known the modulation of CAMs by calorie restriction (CR). In this study, expression of vascular cell adhesion molecule-1 (VCAM-1), intercellular adhesion molecule-1 (ICAM-1), E-selectin, P-selectin and platelet/endothelial cell adhesion molecule-1 (PECAM-1) in aorta and kidney were investigated by western blot and immuno-histochemical stain utilizing *ad libitum* (AL) and CR rats. mRNA levels were detected by RT-PCR. Current data demonstrated that expressions of VCAM-1, ICAM-1, E-selectin and P-selectin were significantly increased during aging and suppressed by CR. RT-PCR data showed increased expression of VCAM-1 and P-selectin during aging and blunted by CR, while ICAM-1 mRNA level kept no change. In addition, mechanism of these alteration were investigated. The up-regulated expressions of CAMs stimuli, TNFα and IL-1β, were found in old AL but not in old CR rats. Our study further explored the effect of aging and CR on common promoter binding sites of CAMs. Result showed that DNA-binding activity of NFκB, AP-1 and CREB increased during aging which was blunted by CR. In conclusion, our data documented that most of the inflammatory CAMs increased expression

during aging and down-regulated by CR. Increased CAMs might contribute to the pathophysiological process of vascular aging.

[PC1-28] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Role of hydrogen peroxide in Rac1 mediated activation of p70s6k signaling pathway

Bae GyuUn°, Kwon HyoungKeun, Kim GwanTae, Kim YongKee, Yoon JongWoo, Cho EunJung, Lee HyangWoo, Han JeungWhan

College of Pharmacy, Sungkyunkwan University, Suwon, Korea

The signal transduction pathway leading to the activation of the p70s6k plays an important role in the progression of cells from G0/G1 to S phase of the cell cycle but remains incompletely characterized. We investigated the role of the Rho family G protein Rac1 in H2O2-mediated p70s6k activation. Transient expression of a dominant negative mutants of the small GTP-binding proteins Rac1 (Rac1N17) and Cdc42 (Cdc42N17) showed reduced levels of slower migration on Western blots of one-dimensional SDS-PAGE in p70s6k and ERK1/2 by PDGF stimulation. Treatment of NIH-3T3 cells with PDGF led to a rapid increase in H2O2, phosphorylation and activation of p70s6k, which were antagonized by the expression of catalase. In an effort to further explore how Rac1 proteins regulate p70s6k activity, we investigated with stable expression of a constant active mutant of Rac1 (Rac1V12) in Rat2 cells, which resulted in a significant increase in intracellular reactive oxygen species (ROS) and S6 kinases (p70s6k and p90rsk) activity. In addition, stable expression of Rac1N17 also inhibited ROS production and PDGF-induced activation of S6 kinases. Rac1V12 transfected Rat2 cells had a considerably faster growth rate and Rac1N17 had a growth-inhibitory effect, compared with control cells transfected with the expression vector alone, indicating that Rac1-induced H2O2 might act as an upstream molecule of p70s6k as well as ERK1/2, p90rsk upstream kinase. Taken together, these results suggest that Rac1 regulates ROS production and leading to p70s6k activation, which have been linked to cell growth.

[PC1-29] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Correlation between signal pathway of chitosan and nitric oxide

Yoon HyunJoong°, Kim YoungHo*, Park HaengSoon

College of Pharmacy, Chonnam National University, Kwangju 500-757, Korea. * College of Natural science, Department of biology, Chosun National University, Kwangju, Korea

Renal dipeptidase (RDPase, EC 3.4.13.19), an ectoenzyme of renal proximal tubules, is covalently bound to outer leaflet of lipid bilayer via glycosylphosphatidylinositol (GPI)-anchor. Chitin is a major component of the shells of crustacea such as crab, shrimp and crawfish. This study was conducted to examine the effect of chitosan on RDPase release from renal proximal tubules. Nitric oxide (NO), highly reactive free radical, inhibits the release of RDPase from porcine proximal tubules. Porcine proximal tubules were prepared with the protocol of Taub et al (1990) and were treated with L-arginine (0,1,5,10 and 20mM, substrate of NO synthase), and chitosan (0.01, 0.05 and 0.1%) in the presence of L-arginine (10mM) for 20 min at 37℃ followed by centrifugation (18000g, 5min). The activity of released RDPase was assayed according to the fluorometric method of Ito et al (1984). Nitrite was determined spectrophotometrically using the Griess reagent. It was observed that the RDPase release was decreased and NO concentration was increased in a concentration-dependent manner of L-arginine. The decreased RDPase release by L-arginine recovered as a function of chitosan concentration. However, nitrite