Effect of Ginsenoside Rb1 on IL-1β expression in rat microglia

Joo SeongSoo, Kang HeeChul, Lee Dolk[O]

Department of Immunology, College of Pharmacy, Chung-Ang University, Seoul 156-756, Korea

As medicinal knowledge developed, population system has been migrating into the aged society. These aged society evokes the social problem of senile diseases. One of these, Alzheimer's Disease (AD) has been an issue, and its causative, β-amyloid(Aβ) has also been a key target in drug development. In AD, microglial cell affects neuron cells in any way of positive and negative. Particularly, microglial cell can eliminate lots of pathogens including β-amyloid(Aβ) in AD. However, in a state of already started and progressed AD, microglial cell rather induces chronic inflammation and lastly shows neurotocixity. In our study, Rb1 was investigated on the release of IL-1β and NO from microglia. As a result, Rb1 showed to suppress the release of IL-1β and NO in 100μM of Aβ-treated group, while normal control group showed a weak increase of IL-1β and NO. These results provide that Rb1 can be used in AD to reduce and prevent the pathological symptoms of AD.

[PB4-7] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Expression of TNF-α in rat microglia by ginsenoside Rb1

Joo SeongSoo, Kwon HeeSeung, Lee Dolk[O]

Department of Immunology, College of Pharmacy, Chung-Ang University, Seoul 156-756, Korea

Azheimer's Disease (AD) known as senile dementia accounts for 50% of all dementia cases and is in growing status as population goes up. Generally, AD is a progressive neurodegenerative disease and includes much of senile plaque in cerebral hippocampus and cortex in patient's brain. For decades, AD theory is explained by amyloid cascade hypothesis. In process of the hypothesis, amyloid hypothesis forms fibrillar form beta-amyloid peptide (Aβ peptide) and extraordinarily accumulates in brain tissue, and lastly senile plaque is formed, which pathologically affect the brain. In this process, activation of microglial cell is important to prevent the plaque formation out of Aβ peptide by its phagocytic function. In our study, we investigated how Rb1 acts in the release of TNF-α and NO from microglial cells, especially in suppressive function. In conclusion, Rb1 suppressed the release of TNF-α and NO from microglial cell.

[PB4-8] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Immuno-modulation Effects of Ginsenoside Rg1 in Rat microglia

Joo SeongSoo, Won TaeJoon, Lee Dolk[O]

Department of Immunology, College of Pharmacy, Chung-Ang University, Seoul 156-756, Korea

Microglial cell is a monocyte involved in the brain, which acts for a primary immune reaction and phagocytosis. Microglia has also been considered to have a great role in AD pathogenesis due to its intact inflammatory and phagocytic responses against foreign invaders. In the study, we tried to investigate the modulation of activation of microglia using Rg1, a class of ginsenoside from red ginseng, which are known to protect neuron cells. For this experiment, we have chosen a proinflammatory cytokine, IL-1β and NO released from microglia. Study groups were separated in two, one for Aβ and the other for non-Aβ group designed for various times and concentrations. As a result, Rg1 showed the highest response both in NO and IL-1β at 48 hour. In non-Aβ group, Rg1 showed increased release of NO and IL-1β at 0.1μM, 100μM. In addition, A

β group revealed that Rg1 suppresses the release of NO and IL-1β at 100μM. In conclusion, Rg1 may play a certain role in treatment and prevention of AD in a way to suppress the immune reaction in microglia adjacent around the neuron cell.

[PB4-9] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Effects of Bifidobacterium spp. isolated from the feces of healthy adults on the enhancement of the presentation of exogenous particulate antigen in association of MHC Class I

Han ShinHa°, Song YoungCheon, Park EunJung, Choi SungSook, Ha Nam-Joo, Kim KyungJae

Department of Pharmacy, Sahmyook University, 26-21 Gongreung-Dong, Seoul, 139-742 South Korea

Bifidobacterium spp. is nonpathogenic, Gram-positive and anaerobic bacteria, which inhabit the intestinal tract of humans and animals. *Bifidobacterium spp.* plays important roles in human health. However, the influence of exogenous factors on species composition of fecal bifidobacteria is still unclear. In this study, we wished to determine whether presentation of exogenous OVA (10 μg/ml) could be enhanced by the culture supernatant of ten *Bifidobacterium spp.* isolated from the feces of healthy adult Korean (20-30 years old). To facilitate this function DC acquire Ag from a variety of sources. DC can uptake Ag released from cells undergoing apoptosis or necrosis for presentation to MHC class I restricted CTL. The objective of this study was to investigate the effects of several *Bifidobacterium spp.* culture supernatant on the function of dendritic cell as antigen presenting cells by B3Z assay. Characterization of the effects of *Bifidobacterium spp.* on the production of macrophage mediators may contribute to a better understanding of how this genus affects immune function at the cellular level. In this study, we used the RAW 264.7 murine macrophage model to evaluate the effects of human *Bifidobacterium spp.* and showed the enhancement of production of nitric oxide (NO) and tumor necrosis factor (TNF-α).

[PB4-10] [04/18/2003 (Fri) 09:30 - 12:30 / Hall P]

Evaluation of the immune responses following treatment of diabetes by traditional herbal drugs in streptozotocin-induced diabetic mice

Yun Yunha°, Han Shinha, Son Hanshik, Lim Heejung, Song Youngcheon, Park Eunjung, Kong Hyunseok, Lee Sookyeon, Ha Nam-Joo, Kim Kyungjae

Department of Pharmacy, Sahmyook University, Seoul 139-742

This experiment was designed to evaluate the immune responses after treatment of diabetes by using water extract of traditional herbal drugs on the splenocytes and peritoneal macrophages in vivo. We found two herbal materials of the hypoglycemic agents based on inhibitory activity of α-glucosidase. These potential herbal drugs which remarkably inhibited α-glucosidase in STZ-induced diabetic mice (STZ 150 mg/kg, i.p.) were Mori radicis Cortex (MRC, 2.32 ㎎/mouse) and Cudraniae radicis Cortex (CRC, 2.24 ㎎/mouse). The herbal drugs were administered orally maltose or starch loaded groups into mice twice a day for 7 days. Peritoneal macrophages were harvested 3 days after thioglycollate broth (3%, i.p.) injection and spleen was also received at the same time. The proliferation assay of splenocytes and nitric oxide (NO) production of peritoneal macrophages were carried out by addition of mitogens. MRC in maltose-loaded groups increased the proliferation of splenocytes with LPS (50 ng/ ml). MRC, CRC, Acarbose in starch-loaded groups appeared to be lower than control for the proliferation. Acarbose in maltose and starch-loaded group was found to be enhanced NO production with treatment of