The purpose of this study was to investigate the effect of manufacturing process for food on allergenicity of soybean or soybean products. Crude extracts of each soybean (SB), weaning diet A (WA) and B (WB) or soybean paste C (SC) and D (SD) were digested a simulated gastric fluid (SGF) to characterize the physicochemical stability of allergens. Allergens of each sample except a SB (82, 39, 35 kDa) were not rapidly digested in SGF. The endogenous allergens in each sample were separated by gel electrophoresis and immunobloted with serum from soybean-sensitive patients or normal subjects. In ELISA result, specific IgE or IgG4 binding activities of positive serum to crude or SGF-treated extracts were higher mean value than those of control serum. Also, IgE or IgG4 binding activities in SB were similar with those of crude soybean paste. Immunoblots showed the diversity in IgE or IgG4 binding protein patterns. The prominent IgE binding bands were detected in crude extracts (SB, 49, 47, 40-41, 35, 29-30; WA & WB, 47, 40-41, 29-30; SC, 42-43, 29-30; SD, 31-32 kDa) and SGF-digested preparations (SB, 33-34, 29-30, 22-25; WA & WB, 31-32, 29-30, 22-25 ; SC, 29-30, 22-25; SD, 31-32, 22-25 kDa). The major IgG4 binding bands were similar to IgE-binding proteins and the minor bands were detected in broad range. Thus, this study suggests that the allergenicity of soybean food products may be varied with manufacturing process or food additive.

[PB4-11] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Anti-diabetic effects and the evaluation of the immune response by F3-ESS from Cordyceps militaris in streptozotocin-induced diabetic mice

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The antidiabetic effect of Cordyceps militaris (CM) extracted fractions, F1 (CCCA, Crude Cordycepin Containing Adenosine), F2 (Ethanol precipitation), F3 (Ethanol soluble supernatant) and F4 (fraction of through SK-1B), was investigated in streptozotocin (STZ)-diabetic mice. The results indicated F3 of CM lowered the blood glucose level than control in STZ-diabetic mice. High blood glucose was induced in mice by intraperitoneal injections of STZ (150 mg/kg). The F3-ESS, which contents cordycepin, strongly showed inhibitory activity by 33.4% in mice loaded with starch (2 g/kg). For 3 days load test, F3-ESS (50 mg/kg, twice a day) showed inhibitory activity by 35.46%. After 6 days administrations of F3-ESS (50 mg/kg) and cordycepin (0.2 mg/kg) exhibited inhibitory activity by 46.9% and 48.4% respectively. We used acarbose for positive standard. When compared with acarbose in starch loaded groups, activity of F3-ESS was shown similar reduction with acarbose (37.22%). The proliferation assay of splenocytes and nitric oxide (NO) production of peritoneal macrophages were carried out by addition of mitogens to see the stability of the usage of this herbal medicine. When compared with control, increased the proliferation of splenocytes with LPS (10 μg/ml). The cordycepin group was found to be enhanced NO production by treatment of LPS (25 ng/ml). Changes of serum enzyme activities of glutamic oxaloacetic transaminase (GOT), glutamic pyruvic transaminase (GPT) were also investigated and the cordycepin appeared to be greater than those of control. We conclude that F3-ESS and cordycepin may be useful in the control of blood glucose level in diabetes and promising new drug as an anti-hyperglycemic agent without defects of immune responses.

[PB4-12] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Nano-particle encapsulated doxorubicin as an anti-cancer chemotherapeutic agent: effect on the systemic immune response I

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The major hurdle of conventional chemotherapeutics is the toxicity to normal tissue. The possible therapeutic advantage(s) of nano-particle encapsulated chemotherapeutics (nano-molecules) may be the enhanced permeability and retention (EPR) effect. Nano-molecules with increase volume may incorporated into the tumor tissue selectively, which is composed of rather sparse structure. EPR effect may cause of increased effectiveness with lower toxicity to normal tissue of nano-chemotherapeutics. In this study, Doxorubicin was encapsulated (nano-Dox) with 50~200nm PLE nano particle (poly (lactic acid)-poly(ethyleneglycol) copolymer) to treat the renal cell carcinoma in mice. In the Balb/c mice having subcutaneous grown RENCA tumor for 3 weeks, nano-Dox was i.v. injected (8 mg/kg) once. Three weeks after the injection, mice were sacrificed to observe the systemic immunity. The growth of tumor burden was measured from the beginning of the experiment, periodically. Electron microscopy indicated the existence of injected nono-Dox in the late stage tumor tissue. The growth of s.c. tumor was inhibited by the treament of nano-Dox as well as naked-Doxorubicin(naked-Dox). No toxicity specific for nano-Dox was observed. Modulation of T and B cell proliferations, lymphocyte phenotypes and cytokine (IL-2, TNF-a) productions was observed in similar way for both nano and naked-Dox treatment. The data suggest the effectiveness of nano-Dox as an anti-tumor chemotherapeutics without specific toxicity. This study is supported by the "IMT 2000-Minstry of Health and Wealfare" in Korea

[PB4-13] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Ginsenoside Rg3 reduces the risk of neuronal cell death by attenuating reactive oxygen species and neurotrophins

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In regard to Aβ toxicity and AD, reactive oxygen species (ROS) are produced by macrophage families in response to Aβ stimulation. In addition to this, neurotrophins (NTs) regulate the neuronal function as well as cell survival and the growth of various types of neurons in both the peripheral nervous system (PNS) and central nervous system (CNS). As high expressions of the ROS and NTs are a routine findings in neuronal cell damage, we wanted to investigate whether Rg3 can inhibit the production of ROS and NTs in primary cell cultures. Results showed that 100㎍/㎖ Rg3 effectively inhibited the production of hydrogen peroxide around 12h to 24h, and NTs were not produced when Rg3 was pre-treated up to 24h from 6h. In conclusion, those results suggests that Rg3 diminish the risk of cell death induced by high concentration of ROS and NTs from the activated microglia.

[PB4-14] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Determination of the minimal sequence of bovine lactoferricin responsible for apoptosis induction

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We examined the minimal amino acid sequence of bovine lactoferricin (Lfcin-B), a cationic peptide corresponding to residues 17-41 near the N-terminus of bovine lactoferrin, to induce apoptosis in THP-1 human monocytic leukemic cells using synthetic peptides. A synthetic peptide (Lfc-17/29, amino acid sequence; FKCRRWQWRMKKL) which is consist of 13 amino acids near the N-terminus of Lfcin-B induced cell death in THP-1 cells in a dose-dependent manner, showing apparent apoptotic changes such as hypodiploid forms of genomic DNA and apoptotic DNA fragmentation. However, another synthetic peptide (Lfc-30/41, amino acid sequence; GAPSITCVRRAF) consist of 12 amino acids near the C-terminus of Lfcin-B was inactive. The characteristics of Lfc-17/29-induced apoptosis was entirely identical with that of Lfcin-B-induced apoptosis, with regard to increased apoptosis with reduction of serum concentration, and inhibition of apoptosis by addition of Ca^{2+}/Mg^{2+}-dependent endonuclease inhibitor or antioxidants. In an analysis using various synthetic peptides having the partial sequences of Lfc-17/29, we found that a peptide consist of 10 amino acids (Lfc-17/26,