

weight of Ginsenoside 50mg/kg group and  $\beta$ -glucan 50mg/kg + Ginsenoside Rh2 50mg/kg group was much lighter than that of control group. At average survival rate,  $\beta$ -glucan 50mg/kg + Ginsenoside Rh2 50mg/kg group,  $\beta$ -glucan 200mg/kg,  $\beta$ -glucan 100mg and 50mg/kg, and Ginsenoside 50mg/kg are higher in order. These data suggest that antimetastatic and antitumor effect of combination Ginsenoside Rh2 and  $\beta$ -glucan be the highest.

[PA3-18] [ 2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function ]

### **Biological Effects Of Blood And Testis By Abdominal Irradiation With Neutron Or Gamma-ray In Black Mouse**

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The aim of this study was to investigate the biological effects of blood and testis by neutron or gamma-ray irradiation in black mouse. Six -week-old C57BL male mice were irradiated with neutron (flux: 1.036739E+09) or Co60 gamma rays(dose rate: 1Gy/min.) The irradiation method of animal was abdominal irradiation and dose of irradiation was 10 and 20 Gy added with 5 and 15Gy in neutron irradiation.. After that, the mice were sacrificed 3 days later. Blood and testis were taken and then composition of blood in blood cell were investigated. In case of testis, testis weight, testis volume and number of sperm in epididymis were investigated. The method and types of irradiation in experimental animal can be many differences in biological effects. This abdominal irradiation can be significantly induced damage of digestive organs, circulatory organs, urinary organs, reproductive organs and so on compared to the other irradiation methods like whole-body and local irradiation. Blood cell ratios in all experimental groups both neutron and gamma-ray irradiation were reduced a little compared to non-irradiated normal group. Especially, number of red blood cells, white blood cells, platelet, Hb and Hct were reduced a little and MCH, MCV and MCHC were similar compared to the non-irradiated control group. Reduction of above results with gamma-ray irradiation were more than those with neutron irradiation. Testis wt. and testis volume in all experimental groups showed almost similar but the number of sperm were reduced a little compared to the normal group. From these results, it showed that blood cells by abdominal irradiation with neutron revealed less damage than those with gamma-ray irradiation but testis wt. and volume revealed no damage with reducing the sperm count in epididymis. Biological effect of blood cells and testis in black mouse by abdominal irradiation with neutron showed less damage than those with gamma-ray compared to the same irradiation dose.

[PA3-19] [ 2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function ]

### **Action mechanism of Antiestrogenicity of Ginkgo biloba extracts and its major components in human breast cancer cell**

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Estrogen is the most important endocrine hormone that has reproduction and physiological process in a number of tissues. However, an excess of estrogen can promotes the growth of hormone-dependent breast cancer. Thus the regulation of estrogen level is important a prevention of estrogen-related cancer. It has been reported that some of flavonoids could inhibit estrogen-dependent cancer. And these compounds are expected as chemopreventive agents on estrogen related disease. Ginkgo biloba extract (GBE) is the active ingredients, which is extracted from the dried, tow-lobed fan-shaped leaves of the Ginkgo biloba tree and contains 24 % flavonoid glycosides and 6% terpene lactones. Therefore, GBE containing a lot of flovonoids may prevent the diseases by estrogen-related cancer. However, no report has been previously demonstrated the preventive effect of GBE on estrogen-dependent diseases. Accordingly, the goal of this study was to investigate the potencies of GBE and its major components (kaempferol, quercetin, and isorhamnetin) for antiestrogenic and antiproliferation effects, which confirms the capacity as preventive agents. It was found that GBE and its major components exerted a dual action on ER-a and ER-b in competitive binding assay. . The binding affinity of these chemicals to ER-b was higher than to ER-a. GBE exhibited biphasic response in estrogenicity. The antiestrogenic action was occurred in the presence of high

concentration of estradiol, however, the estrogenic action was occurred in the presence of low concentration of estradiol. We provided the evidence that GBE and its major components may have chemopreventive effect on breast cancer through antiestrogenic activity, antiproliferation and apoptosis.

[PA3-20] [ 2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function ]

**The altered Na<sup>+</sup>, K<sup>+</sup>-pump activity following the fumonisin exposure to LLC-PK1 cells**

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Fumonisin are specific inhibitors of ceramide synthase in sphingolipid metabolism. Sphingolipids are biologically active lipid mediators in cellular physiology and involved in cell signaling, growth, transformation, angiogenesis and differentiation. The objective of this study was to determine the effect of fumonisin B1 on Na<sup>+</sup>, K<sup>+</sup>-pump activity when fumonisin B1 was exposed to LLC-PK1 cells. Fumonisin B1 elevated free sphingoid bases and their 1-phosphates, while total complex sphingolipids were depleted at 20μM fumonisin B1 during the 3 day exposure. The inhibition of ouabain-insensitive Na<sup>+</sup>, K<sup>+</sup>-pump activity was shown under the same culture condition as the sphingolipid alteration occurred. The results indicated that sphingolipid may be related to the regulation of ouabain-insensitive Na<sup>+</sup>, K<sup>+</sup>-pump activity. However, fumonisin B1 did not change the ouabain-sensitive Na<sup>+</sup>, K<sup>+</sup>-pump activity at all. Therefore, fumonisin may be a specific modulator for the action of ouabain-insensitive Na<sup>+</sup>, K<sup>+</sup>-ATPase in LLC-PK1 cells which leads to fumonisin-induced cytotoxicity and cell proliferation.

[PA3-21] [ 2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function ]

**Antioxidative and antigenotoxic activity of vegetable and fruit extracts**

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The ethanol extracts of mixed vegetables (Bioactive V, BV), mixed fruits (Bioactive F, BF) and its liquid formulation (Chungpae Plus<sup>®</sup>) were evaluated for their antioxidative and antigenotoxic activity. They were shown to possess the significant free radical scavenging effect against 1,1-diphenyl-2-picryl hydrazine (DPPH) radical generation and were revealed to show the inhibitory effect of lipid peroxidation as measured by malondialdehyde (MDA) formation. They were also found to strongly inhibit cigarette smoke condensate (CSC) or hydrogen peroxide-induced DNA damage from mammalian cells, assessed by single cell gel electrophoresis. Furthermore, oral administration of vegetables and fruits extracts inhibited micronucleated reticulocyte (MNRET) formation of mouse peripheral blood induced by CSC or KBrO<sub>3</sub> treatment in vivo. The liquid formulation under same experimental conditions also showed similar antigenotoxicity in vitro and in vivo. Therefore, the liquid formulation (Chungpae Plus<sup>®</sup>) containing BV and BF may be a useful natural antioxidative and antigenotoxic agent by scavenging free radicals, inhibition of lipid peroxidation and protecting DNA damage.

[PA3-22] [ 2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function ]

**An antithrombotic agent, NQ301, inhibits thromboxane A<sub>2</sub> synthase activity and blocks thromboxane A<sub>2</sub> receptor in rabbit platelets**

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In the previous studies, we have reported that NQ301, a synthetic 1,4-naphthoquinone derivative, displayed a potent antithrombotic activity, and that this might be due to antiplatelet effect, which was mediated by inhibition