

DMSO, a non-polar solvent, is frequently used to dissolve the chemical compounds or natural products which are insoluble in water. However, DMSO provokes various unwanted activities such as the stimulation of cell proliferation. In studying the anti-allergic activities of natural compounds we isolated, the DMSO used to dissolve the natural compounds was found to possess some unwanted effects, it dose-dependently inhibited the antigen-stimulated degranulation of rat mast cells, RBL-2H3 cells. In accordance with this, we examined the effect of DMSO on the tyrosine phosphorylation of syk, PLC γ 2, MAPK, and pyruvate kinase, the signal components of Fc ϵ RI (high affinity IgE receptor). At the concentration of 0.1 to 0.5%, DMSO did not have any effect on the tyrosine phosphorylation of Syk or PLC γ 2. Pyruvate kinase was tyrosine phosphorylated by DMSO at or above 0.1% and MAPK was also tyrosine phosphorylated at 0.5%.

[PA1-11] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

The Effects of Magnetic Fields on Circadian Rhythm of Pain Threshold in Mice

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The aim of this study was to determine whether magnetic fields (MFs) participate in the circadian rhythm of pain threshold. Pain thresholds were evaluated with the hot plate test using mice. We found that circadian rhythm of pain threshold exists with the significant increase of pain threshold during nighttime. This circadian rhythm was masked not only under continuous lightness for 5 days but also under continuous darkness for 5 days. Circadian rhythm was exhibited under darkness with the MFs cycle (exposure to 15G for 12 hours, from 08:00h to 20:00h) for 5 days, as was observed in normal mice. However, the circadian rhythm was not exhibited under darkness with the reversed MF cycle (exposure to 15G for 12 hours, from 20:00h to 08:00h) for 5 days though pain threshold in the MF-exposed period of nighttime was slightly decreased. This study suggests that MFs participate in the circadian rhythm of pain threshold without environmental light.

[PA1-12] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Effect of Daidzein and Genistein on Immune Function in Mice

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High soy consumption leading to high exposures of soy isoflavones has been associated with a reduced risk of cancers at many sites. As part of a study focusing on the chemopreventive mechanisms, we have investigated the modulating effects of daidzein and genistein, a prominent and more bioavailable isoflavone in soy foods, on murine immune function. Daidzein (50mg/kg) or genistein administered p.o. once a day for 7 days in BALB/c mice. Daidzein decreased the mitogen-stimulated proliferation of murine splenocytes, but genistein increased. Daidzein stimulated the secretion of interleukin-4, but inhibited the secretion of gamma-interferon and interleukin-2. Genistein stimulated the secretion of gamma-interferon, interleukin-2 and tumor necrosis factor-alpha, but inhibited the secretion of interleukin-4. Daidzein and genistein inhibited the production of nitric oxide and enhanced the phagocytic activity in peritoneal macrophages. These results suggest that cancer preventive effects of daidzein is partly concerned with the secretion of TH2 cells cytokine and the activation of phagocytosis, and genistein is partly concerned with the secretion of TH1 cells cytokine and tumor necrosis factor-alpha and the activation of phagocytosis.

[PA1-13] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]