frequency magnetic field exposure.

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It has been shown that extremely low frequency time-varying magnetic field (MF) modulate the function of brain. We, therefore, were aimed at observing whether MF affectes the central nerve system. We have studied the level of catecholamines and indolamines in rat brain using HPLC-ECD analysis system. The rats were exposed to sham or MF during 1, 2 and 3 days. After exposure, the parts of brain (cortex, hippocampus, striatum, cerebellum and thalamus) were isolated at the same time of day in order to escape the circadian rhythm of level in catecholamines and indolamines. The isolated brain samples were sonicated in 0.1 M perchloric acid and then centrifuged for the HPLC-ECD analysis to detect norepinephrine, DOPAC, dopamine, HIAA, HVA and serotonin. Exposure of rats to MF produced the increase of the level of norepinephrine, HVA and HIAA in striatum. In thalamus, norepinephrine also increased but dopamine decreased. These data suggests that exposure of extremely low frequency time-varying magnetic field to rats changes neurotransmitters such as norepinephrine or serotonin as well as their metabolites

[PA2-1] [10/19/2000 (Thr) 10:00 ~ 11:00 / [Hall B]]

Peroxynitrite scavenging and cytoprotective activity of 2,3,6 -tribromo-4,5-dihydroxy benzyl methyl ether from marine alga Symphyocladia latiuscula

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Peroxynitrite (ONOO-), formed from the reaction of superoxide(·O2-) and nitric oxide (·NO), is a cytotoxic species that can oxidize several cellular components such as proteins, lipids, and DNA. It has been implicated in diseases such as Alzheimer's disease, rheumatoid arthritis, cancer, and atherosclerosis. Due to the lack of endogenous enzymes responsible for ONOO- inactivation, developing a specific ONOO- scavenger is considerably important. The aim of this study was to evaluate the ability of marine natural products to scavenge ONOO- and to protect cells against ONOO-. Methanolic extracts of 17 marine alga were tested for their ONOO- scavenging activity. Among them, Symphyocladia latiuscula showed the potent scavenging activity. CH2CH2 fraction of the methanol extract of S. latiuscula was highly effective for ONOO- scavenging activity. Further analysis of the active fractionated extract identified 2,3,6-tribromo-4,5-dihydroxy benzyl methyl ether (TDB) as a potent ONOO- scavenger. The data demonstrated that TDB led to decrease ONOO--mediated nitration of tyrosine through electron donation. TDB showed the significant inhibition on nitration of bovine serum albumin (BSA) and low-density lipoprotein (LDL) by ONOO- in a dose-dependent manner. They also provided cytoprotection from cell damage induced by ONOO-. TDB can be developed as an effective peroxynitrite scavenger for prevention of involved diseases.

[PA3-1] [10/19/2000 (Thr) 10:00 ~ 11:00 / [Hall B]]

Antiestrogenic effect of Conjugated linoleic acid on several estrogen -like compounds in MCF-7 human breast cancer cell

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Conjugated linoleic acid(CLA) is a mixture of positional and geometric isomers of Linoleic acid, which is found preferentially in dairy products and meat. CLA is unique because it is present in food from animal sources, and its anticancer efficacy is expressed at concentrations close to human consumption levels.
Recently the published reports indicated that CLA was cytostatic and cytotoxic to the MCF-7 BUS human breast cancer cells in vitro. However at the mixtures of CLA and estrogen-like compounds, the effect by CLA of estrogen-like compoundsinduced cell proliferation is not yet understood. In the present study, the antiestrogenic activity of CLA on several estrogen-like compounds was examined in a MCF-7 human breast cancer cells.
In the MCF-7 BUS cell proliferation assay, CLA inhibited the growth of MCF-7 BUS human breast cancer cells in a dose($0.18-35.7\times10^{-5}$M) and time dependent manner in culture. CLA was cytotoxic at the concentrations higher than 3.57×10^{-5}M and significantly inhibited the cell proliferlation at the concentrations lower than 1.78×10^{-5}M.
To assess the antiestrogenic activity of CLA(1×10^{-5}M) on several estrogen-like compounds, cell proliferation in the absence and presence of CLA was compared using E-SCEEN assay, which is based on proliferation of the estrogen-sensitive human breast cancer cell (MCF7-BUS). Results from the E-SCEEN assay showed that cell proliferation of estrogen-like compounds in presence of CLA compared to the absence CLA significantly inhibited adjust 70 - 75%. In addition, antiestrogenicity of CLA was determined by the MCF-7 focus assay and a whole-cell competitive binding assay which was examined for its ability of inhibition to bind the estrogen receptor of several estrogen-like compounds in

[PA3-2] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Radioprotective effect of combined treatments of antioxidants in mouse jejunum and spleen

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Radioprotective effect of combined treatments of antioxidants in mouse jejunum and spleen

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This study deals with the radiation protection effect of the pretreatment of two kinds of antioxidants on the morphological changes in mouse jejunum or population size of immune cells in mouse spleens after γ-irradiation. Six week old BALB/c male mice were irradiated with 6.5Gy of γ-radiation and were sacrificed after 30days. The mouse jejunum was taken for morphological examination after Hematoxylin-Eosin(H-E)staining and spleen for population size of immune cells by FACS. Morphological results indicated that jejunum after irradition showed changes such as a decrease of villi number and gland number compared with those of the non-irradiated group. In specific, a little damages were found in the mouse jejunum treated with combined treatments of antioxidants such as ascorbic acid, cysteine and tocopherol before 6.5Gy irradiation. In addition, the population size of spleen immune cells pretreated with combined treatments of antioxidants increased a little compared with that of the irradiated control group. However, treatment with single antioxidant resulted in the increase of the population cells like T cytotoxic cell and T helper cell. The combined treatment of antioxidants is less effective in radioprotection than the single treatment.