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The peroxisome proliferator-activated recetor-γ(PPAR-γ), a member of the nuclear hormone receptor superfamily, is activated by structually distinct ligands, including anti-diabetic thiazolidinediones, several non-steroidal anti-inflammatory drugs (NSAIDs), and 15-deoxy-Δ12,14-prostaglandin J2 (15 d-PGJ2). Activation of PPAR-γ has been found to promote neurite outgrowth of differentiating PC 12 cells. However, it is not clear yet as to what signaling pathway is required for the promotion of neurite outgrowth. Since transcription factors AP-1 and NF-κB are known to play a predominant role in the cell differentiation, this study was designed to investigate the activation of AP-1 and NF-κB during the neurite outgrowth in cultured PC-12 cells, a useful system for the study of differentiation function. Activation of AP-1 and NF-κB was concomitantly increased by the increase of neurite formation by nerve growth factor with/without 15-deoxy PGJ2. In addition, ochratoxin A, which blocked neurite formation, inhibited activation of AP-1 and NF-κB. These data show that AP-1 and NF-κB signals may be important in the neurite formation. Apoptosis during neurite outgrowth, role of PPAR-γ, and crosstalk between PPAR-γ expression and activation of transcription factors are being investigated.

[PB3-9] [04/19/2001 (Thr) 15:30 - 16:30 / Hall 4]

NO modulates the anxiolytic effects of acute morphine in the plus-maze

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This experiment was performed to investigate whether NO precursor (L-arginine), NO donor (S-nitroso-N-acetlypenicillamine, SNAP) and NO synthase inhibitors [L-NG-nitro-arginine methyl ester (NAME) and NG-nitro-L-arginine (NOARG)] modulate morphine-induced anxiolytic effect in the plus maze. L-arginine (200 and 300 mg/kg, i.p) and SNAP (4, 8 and 10 mg/kg, i.p) reduced the anxiolytic effect of morphine (20 mg/kg, s.c). NAME (10, 20 and 40 mg/kg, i.p) and NOARG (10, 15 and 20 mg/kg, i.p) enhanced the anxiolytic effect of morphine (20 mg/kg, s.c). L-arginine and SNAP increased the morphine-induced locomotor activity. NAME decreased the mophine-induced locomotor activity but NOARG did not modify the morphine-induced locomotor activity. Therefore, the results suggest that the anxiolytic effects of morphine can be modulated by NO system in independent manner of locomotor.

Poster Presentations - Field B4. Immunology

[PB4-1] [04/19/2001 (Thr) 15:30 - 16:30 / Hall 4]

Effect of B30-MDP, a MDP derivative, as an adjuvant for tumor vaccine

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The effect of B30-MDP, a derivative of muramyl dipeptide (MDP), on enhancement of antitumor

immunity against highly metastatic murine cells (L5178Y-ML25 lymphoma) was investigated. Mice immunized with the mixture of X-irradiated tumor cells and B30-MDP on 7 days before tumor challenge showed a significant decrease in liver and spleen metastasis of L5178Y-ML25 cells. Sensitization with X-irradiated tumor cells admixed with B30-MDP augmented CTL activity against L5178Y-ML25 cells. Furthermore, immunization of mice with the mixture of X-irradiated tumor cells and B30-MDP after tumor inoculation induced the decrease of the level of GOT and GPT in serum specimens of tumor-bearing mice. These results indicate that B30-MDP is able to enhance a specific tumor immunity against metastatic tumors.

[PB4-2] [04/19/2001 (Thr) 15:30 - 16:30 / Hall 4]

Effect of the lectins from Korean mistletoe on immune responses

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Adjuvant effect of lectins (KML-C) isolated from Korean mistletoe (Viscum album coloratum) on induction of humoral and cellular immune responses against keyhole limpet hemocyanine (KLH) was examined. When mice were immunized subcutaneously (s.c.) with KLH (20 mg/mouse) admixed with or without 50 ng/mouse of KML-C (KLH+KML-C), mice immunized with KLH+KML-C showed significantly higher antibody titers against KLH than those immunized with KLH alone, showing the highest titer 5 weeks after immunization. Furthermore, boost immunization with KLH+KML-C at 2-week interval elicited much higher activity than single immunization to enhance antibody responses against KLH. The assay for determining isotypes of antibodies revealed that KML-C augmented KLH-specific antibody titers of IgG1, IgG2a and IgG2b. The culture supernatants obtained from the splenocytes of mice treated with KLH+KML-C also showed a higher level of KLH-specific both Th-1 and Th-2 type cytokines, IL-2 and IL-4. In an in vitro analysis of T lymphocyte proliferation to KLH on week 4, the splenocytes of mice treated with KLH+KML-C showed a significantly higher proliferating activity than those treated with KLH alone. In addition, mice immunized twice with KLH+KML-C and followed by intrafootpad (i.f.) injection of KLH (50 mg/site) 14 weeks after the primary immunization induced a higher delayed-type hypersensitivity (DTH) reaction than mice treated with KLH alone. These results suggest that KML-C is a potent immunoadjuvant to enhance cellular and humoral immune responses.

[PB4-3] [04/19/2001 (Thr) 15:30 - 16:30 / Hall 4]

Effect of Cellular NF-κB Activation by Flavonoids after LPS Stimuli in Transfectant Human SCC-13 Keratinocytes

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Flavonoids are widely found in fruits and vegetables, exerting a wide range of therapeutic roles, including good anti-inflammatory and antioxidant activities. NF-κB (nuclear factor kappa B) plays a role in the regulation of genes responsible for inflammatory and immune responses. When NF-κB is activated by various agents such as lipopolysaccharides (LPS), NF-κB is released from IκB and then translocated from cytosol to the nucleus. NF-κB induces the immunoglobulin k chain, cytokines such as interleukin (IL)-1, IL-2, IL-6, IL-8, tumor necrosis factor (TNF)-α and interferon-γ. Therefore Inhibitors of NF-κB may be useful as being anti-inflammatory. The determination of NF-κB activity performed by employing SCC-13 transfected with pNF- κB-SEAP-NPT plasmid. NF- κB activity was measured in the SEAP reporter gene assay using a fluorescence detection method. In this presentation, we examined 87 flavonoids for the expression of NF-κB. Among them, 9 samples