lymphocyte (CTL) activity against allogenic tumor cells in vivo.

[PB4-5] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Induction of secretory and cellular activities by pneumococcal teichoicated fragments in macrophages

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Bacterial components and their derivatives have been reported to mediate various immunomodulating activities and to activate immune cells including macrophage. In this study, the secretory and cellular macrophage response to teichoicated fragments from pneumococcal cell wall subcomponent were examined. Tumoricidal activity was measured by MTT assay and secretory molecules were assessed by biological assay. After stimulation of macrophages with teichoicated fragments (100㎍/ml) for 18hrs, secretion of TNF-α, nitrite and hydrogen peroxide were significantly increased as compared to medium-treated control. In addition, tumorcidal activity of teichoicated fragments-treated macrophages was enhanced, whereas production of IL-1 and IL-6, and phagocytic activity were not induced. These data suggest that teichoicated fragments is a potent inducer of macrophage secretory and cellular activities.

[PB4-6] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

A muramyl dipeptide derivative [MDP-Lys(L18)] enhances antitumor immunity raised by an inactivated tumor vaccine.

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We examine the immunostimulating activity of MDP-Lys(L18), a lipophilic derivative of muramyl dipeptide (MDP) which is a biological subunit of bacteria cell wall, to augment antitumor immunity induced by X-irradiated tumor cells against highly metastatic B16-BL6 melanoma cells. Mice immunized intradermally (i.d.) with the mixture of X-irradiated B16-BL6 cells and MDP-Lys(L18) [Vac+MDP-Lys(L18)] followed by intravenous (i.v.) inoculation of 104 viable tumor cells 7 days after immunization, showed significant inhibition of experimental lung metastasis of B16-BL6 melanoma cells. The most effective immunization for the prophylactic inhibition of tumor metastasis was obtained from the mixture of 100 μg of MDP-Lys(L18) and 104 X-irradiatied tumor vaccine. Furthermore, immunization of mice with Vac+MDP-Lys(L18) 3 days after tumor challenge resulted in significant inhibition of lung metastasis of B16-BL6 melanoma cells in experimental lung metastasis model. Similarly the administration of Vac+ MDP-Lys(L18) 1 or 7 days after tumor amputation markedly inhibited tumor metastasis of B16-BL6 in a spontaneous lung metastasis model. When Vac+ MDP-Lys(L18) was i.d. administered 3 days after subcutaneous (s.c.) inoculation of tumor cells (5X105/site) on the back, mice treated with Vac+MDP-Lys(L18) showed significantly inhibited tumor growth of B16-BL6 cells on day 20. These results suggest that MDP-Lys(L18) is able to enhance antitumor activity induced by X-irradiated tumor vaccine to reduce lung metastasis of tumor cells, and is a potent immunomodulating agent which may be applied prophylactically as well as therapeutically to treatment of cancer metastasis.

[PC1-1] [04/21/2000 (Fri) 14:50 - 15:50 / [1st Fl, Bldg 3]]

Metabolism of acyclovir, ganciclovir and penciclovir in infected cells with

acyclovir-resistant and wild-type strains of herpes simplex virus type 1

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The antiherpes agents acyclovir (ACV), ganciclovir (GCV) and penciclovir (PCV) are potent inhibitors of herpes simplex viruses in vivo and in vitro and virus-selective nucleoside analogs. Their agents are converted to monophosphate by viral thymidine kinase (TK). Cellular enzymes convert the nucleoside analog monophosphate to its triphosphate, which is a potent inhibitor of the HSV-encoded DNA polymerase. To investigate metabolism of ACV, GCV and PCV in cell culture system, we infected Vero, cellular TK-deficient 143B and viral TK expressing FTK/143B cells with herpes simplex virus type 1 (HSV-1) strain F and AR1 - AR2, the laboratory derived TK-deficient ACV-resistant mutants of HSV-1 strain F. The level of phosphorylation of nucleoside analogs was dependent upon virus type and cell line. In HPLC assay, the level of phosphorylation of nucleoside analog in AR1 infected cells was lower than HSV-1 strain F infected cells and similar to uninfected cells. However, AR2 infected cells was lower than HSV-1 strain F and higher than AR1 infected cells. The order of phosphorylation level of ACV and PCV was triphosphate ≥ diphosphate > monophosphate., and GCV was monophosphate ≥ diphosphate > triphosphate. It was also observed that phosphorylation of nucleoside analogs in virus infected cells varied within the different cell type. The order of phosphorylation levels of GCV in these cell types was 143B ≥ FTK/143B > Vero, and PCV was FTK/143B ≥ 143B > Vero.

[PC1-2] [04/21/2000 (Fri) 14:50 - 15:50 / [1st Fl, Bldg 3]]

Effects of antioxidants and an anticancer drug against H2O2-induced cell injury

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The induction of apoptosis by the oxidative stress was investigated in SK-MEL-2 cells with hydrogen peroxide(H_2O_2). And the effects of antioxidants and an anticancer drug were observed against H2O2-induced apoptosis.

Various concentrations of H_2O_2 were treated to SK-MEL-2 cells for different incubation times and the cytotoxicity was evaluated by MTT assay. In addition, to determine the defense effect of antioxidants or an anticancer drug on apoptosis, the cells were each or pretreated with them, and then exposed to H_2O_2.

Thus, antioxidants such as vitamin E inhibited the apoptotic cell death by oxidative stress, but co-treatment of H_2O_2 and cisplatin seemed to be additive effect by production of free radicals.

[PC1-3] [04/21/2000 (Fri) 14:50 - 15:50 / [1st Fl, Bldg 3]]

Development of Stable Assay System for Monitoring NF-Kappa B Expression in Human HaCaT Cells

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A stable assay system for monitoring NF-kappa B activation was developed to determine the influence of activated NF-kappa B in human HaCaT cells. The pNF-kappa B-SEAP-NPT vector that permits for expression of the secreted alkaline phosphatase (SEAP) gene and contains the neomycin phosphotransferase (NPT) gene for the antibiotic G-418 resistance was constructed. Human HaCaT