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

Bae PK, Kim HS, Lee JK

Pharmaceutical Screening Center, Korea Research Institute of Chemical Technology

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

Kim JH°, Kim AK

College of Pharmacy, Sookmyung Women's University

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

Moon KY°, Hahn BS, Lee JS#, Kim YS*

Natural Products Research Institute, Seoul National University, Seoul 110-460, #R & D Center, Pacific Co., Inc. Yongin, KyoungKi-Do, 449-900

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