(O-9)

Antitumor Promotional and Antiproliferative Properties of the Methanol Extract of Heat-processde *Panax Ginseng*, C.A. Meyer

[1]Jee-Young Kang, [2]Su Jeen Lee, [1]Eunyong Lee, [1]Young Sam Keum, [1]Kyung-Soo Chun, [1]Jong-Min Lee, [3]Kwang-Kyun Park, [1]Jeong-Hill Park, [2]Gu Kong and [1]Young-Joon Surh

[1]College of Pharmacy, Seoul National University, [2]Department of Pathology, College of Medicine, Hanyang University and [3]Yonsei University College of Dentistry

A wide array of dietary and medicinal phytochemicals have been identified to possess substantial cancer chemopreventive activities. *Panax ginseng* C.A. Meyer is one of the most widely used medicinal plants, particularly in East Asian countries. Certain fractions or purified ingredients of ginseng have been shown to exert inhibitory effects on growth of cancer cells in culture or on tumorigenesis in experimental animals. Moreover, a recent epidemiologic study reveals that ginseng intake is associated with a reduced risk for environmentally related cancers such as esophageal, gastric, colorectal and pulmonary tumors. As part of a program aimed at development of new types of naturally occurring chemopreventive agents, we have initially determined the effects of the methanolic extracts of heat-processed Panax ginseng C.A.Meyer(designated as NGMe) on chemically-induced carcinogenesis in experimental animals. Thus, topical application of NGMe onto shaven backs of female ICR mice significantly attenuated 12-*O*-tetradecanoylphorbol-13-acetate (TPA)-induced skin papillomagenesis initiated by 7,12-dimethylbenz[α]anthracene. TPA-induced epidermal ornithine decarboxylase activity was also inhibited by NGMe pretreatment.

In another study, NGMe was testde for its ability to induce differentiation in

human promyelocytic (HL-60)leukemia cells. HL-60 cells treated with NGMe at the concentrations of 0.1, 0.2 or 0.3 mg/ml did not exhibit any significant morphological features of differentiation up to 7 days. Higher concentrations of NGMe, however, caused marked cytotoxicity as determined by the MTT assay;cell viability was reduce 48% and 90% at 5h after treatment with 0.1mg/ml and 0.2mg/ml NGMe, respectively. In parallel with suppression of viability, proliferation of HL-60, as determined by nuclear incorporation of tritium-labelled thymidine and flow cytometric analysis of the subpopulation of S-phase cells, was also inhibited in a concentration-dependent manner by NGMe. The suppression of proliferation was accompanied by apoptotic cell death. The effect of NGMe on cellular expression of Ki-67, a selective proliferation marker, is under investigation to further confirm its antiproliferative activity.