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[Lab. of Biochemistry]

Chemoprevention of 4-Nitroquinoline 1-Oxide-induced Rat Oral Carcinogenesis by the Dietary Flavonoids Chalcone, 2-Hydroxychalcone, and Quercetin.

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The modifying effects of dietary exposure of three flavonoids, chalcone, 2-hydroxychalcone, and quercetin during the initiation and postinitiation phases of oral carcinogenesis initiated with 4-NQO were investigated in rats. Feeding of all test chemicals caused a significant reduction in the frequency of tongue carcinoma, and decreased the BrdU labeling index and polyamine levels. Thus three flavonoids have an inhibitory effect on oral carcinoma initiated with 4-NQO, and such a modifying effect may be related partly to the suppression of cell proliferation.

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[Lab. of Biochemistry]

Modifying Effects of the Arotinoid Mofarotene (Ro 40-8757) on Azoxymethane-induced Rat Colon and Liver Carcinogenesis.

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The modifying effect of dietary administration of the arotinoid mofarotene (Ro 40-8757) during the initiation and postinitiation phases of colon carcinogenesis initiated with azoxymethane (AOM) were investigated in male F344 rats. Dietary exposure of Ro 40-8757 inhibited the development of ACF induced by AOM. Ro 40-8757 feeding also decreased cell proliferation activity, as revealed by measuring the BrdU labeling index in crypt cells and blood polyamine levels, but no statistical significance was observed. These results indicate that Ro 40-8757 may have weak chemopreventive effects on colon and liver carcinogenesis.

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[Lab. of Biochemistry]

Threonine 1342 in Human Topoisomerase II α Is Phosphorylated Throughout the Cell Cycle.

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To investigate the relationship between the modulation of topoisomerase activity and its phosphorylation state during the cell cycle, a monoclonal antibody against C-terminal peptide (residues 1335-1350) of topoisomerase II α were prepared. In an enzyme-linked immunosorbent assay, the antibody (PT1342) recognized the immunogenetic phosphopeptide but not the non-phosphorylated form of the peptide. The antibody did not react with the human topoisomerase mutated at codon 1342 from threonine to alanine, and stained the nuclei in interphase and mitotic chromosomes. Thus, threonine 1342 in topoisomerase II α is phosphorylated throughout the cell cycle.