Suppressive Effect of Enzymatically Modified Isoquercitrin on Liver Tumor Promotion in Rats

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Summary
To investigate the modifying effect of enzymatically modified isoquercitrin (EMIQ) on hepatocellular tumor promotion induced by Cytochrome P450 (CYP) inducers (oxfendazole; OX, β-naphthoflavone; BNF or phenobarbital; PB), male rats were administered a single intraperitoneal injection of N-diethylnitrosamine (DEN) and were fed a diet containing CYP inducers (0.05 % OX, 0.5 % BNF or 0.05 % PB) for 6 weeks with or without EMIQ (0.2 %) in the drinking water after DEN initiation. One week after the commencement of the administration of BNF, Ox or PB, rats were subjected to a two-thirds partial hepatectomy. The number and area of GST-P-positive foci promoted by BNF, Ox or PB were significantly suppressed by the administration of EMIQ. Real-time RT-PCR analysis revealed that the mRNA expression levels of antioxidant, inflammatory or CAR dependent genes in the DEN-BNF, -Ox or –PB group were suppressed by the EMIQ treatment. These results suggest that co-administration of EMIQ suppresses the hepatocellular tumor-promoting activity of these CYP inducers in rats through various mechanisms, and EMIQ may be useful in mitigating or preventing human liver cancer.