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**CHEMOPREVENTIVE EFFECTS IN MOUSE SKIN
CARCINOGENESIS AND INDUCTION OF APOPTOSIS IN HUMAN
PROMYELOCYTIC LEUKEMIA(HL-60) CELLS BY
XANTHORRHIZOL**

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Curcuma xanthorrhiza Roxb(Zingiberaceae) has been traditionally used in Indonesia for dietary and medicinal purposes. Xanthorrhizol is a sesquiterpenoid isolated from *C. xanthorrhiza* that has been known to possess anti-inflammatory and anticarcinogenic effects. In our studies to evaluate the cancer chemoprevention potential, xanthorrhizol inhibited the mutagenesis induced by *tert*-butylhydroperoxide and hydrogen peroxide in *Salmonella typhimurium* TA102 in a dose-related manner and decreased significantly the incidence and multiplicity of skin tumors initiated by 7,12-dimethylbenz[α]anthracene and promoted by 12-*O*-tetradecanoylphorbol-13-acetate at 19 weeks. Xanthorrhizol significantly suppressed the TPA-induced cyclooxygenase-2 expression in a dose dependent manner and activation of NF- κ B that regulates the expression of various genes involved in inflammation and carcinogenesis. This effect of NF- κ B is mediated through the inhibition of subsequent degradation of I κ B α , an inhibitor of NF- κ B. Therefore, evaluations of signal cascades affecting NF- κ B activation are in progress. Overall the inhibition of NF- κ B and its related kinase activation may involve in part the molecular basis on the anticarcinogenic and anti-inflammatory effects of xanthorrhizol. In another experiment, *C. xanthorrhiza* and its pharmacological active compound, xanthorrhizol suppressed viability in cultured human promyelocytic leukemia (HL-60) cell. The anti-proliferative activity of xanthorrhizol and *C. xanthorrhiza* appears to be attributable to their apoptosis-inducing capability as

determined by characteristic morphological changes, nuclear condensation, quantification of sub diploid DNA content and caspase-3 activation. Taken together, these findings suggest that xanthorrhizol possesses potential chemoprevention activities.