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Wogonin (5,7-dihydroxy-8-methoxyflavone), isolated from Scutellaria radix, was previously reported to inhibit the expression and activity of cyclooxygenase-2 in lipopolysaccharide stimulated cells of a mouse macrophage cell line, RAW 264.7. Here, in order to find in vivo effects, inhibition by wogonin of 12-O-tetradecanoylphorbol-13-acetate (TPA)-induced cyclooxygenase-2 expression and anti-inflammatory activity in vivo were investigated. When applied topically to the dorsal skin of mice, wogonin at doses of 50 ?200 mg/site/treatment (total five treatments in three days) inhibited cyclooxygenase-2 expression and prostaglandin E2 production induced by multiple treatments with TPA. At 200 mg/site/treatment, wogonin caused a 55.3% reduction of prostaglandin E2 production on the dorsal skin compared with an increased production in the TPA-treated control group. The same compound significantly inhibited mouse ear edema induced by TPA in both preventive (58.1% inhibition) as well as curative treatment (31.3% inhibition) schedules at 200 mg/ear/treatment. Inhibition of neutrophil infiltration was also observed. Therefore, wogonin may be beneficial for cyclooxygenase-2-related skin disorders.

[PC1-23] [10/19/2001 (Fri) 09:00 - 12:00 / Hall D]

Effects of Ginkgetin from Ginkgo biloba Leaves on Cyclooxygenases and In Vivo Skin Inflammation

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Ginkgetin, a biflavone from Ginkgo biloba leaves, was previously reported to be a phospholipase A2 inhibitor and this compound showed the potent antiarthritic activity in rat adjuvant-induced arthritis as well as analgesic activity. This investigation was carried out to find effects on cyclooxygenase (COX)-1 and ? including in vivo effect. Ginkgetin (1 ?10 uM) and the biflavonoid mixture (10 ?50 ug/ml), mainly 1:1 mixture of ginkgetin and isoginkgetin, from G. biloba leaves, inhibited production of prostaglandin E2 from lipopolysaccharide-induced RAW 264.7 cells. This inhibition was mediated, at least in part, by down-regulation of COX-2 expression, but not by direct inhibition of COX-1 or COX-2 activity. Down-regulation of COX-2 by ginkgetin was also proved in the dorsal skin of ICR mouse treated by 12-O-tetradecanoylphorbol-13-acetate (TPA). At total doses of 1,000 ug/site on the dorsal skin (15 mm ?15 mm), ginkgetin inhibited prostaglandin E2 production by 65.6% along with marked suppression of COX-2 induction. In addition, ginkgetin and the biflavonoid mixture (100 ?1,000 ug/ear) dose-dependently inhibited skin inflammation of croton oil induced ear edema in mice by topical application. Present study suggests that ginkgetin from G. biloba leaves down-regulates COX-2 induction in vivo and this down-regulating potential is associated with anti-inflammatory activity against skin inflammatory response.

[PC1-24] [10/19/2001 (Fri) 09:00 - 12:00 / Hall D]

Characterization of a gene cluster responsible for catechol catabolism in Pseudomonas cepacia G4

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Pseudomonas cepacia G4 is a soil bacterium that can grow in toluene, cresol or phenol as the sole carbon and energy source. A recombinant plasmid encoding a gene cluster responsible for degradation of the aromatic xenobiotics was isolated from a total DNA library of P. cepacia G4 and designated as pCNU301. The pCNU301 contained tomBCEGFD gene cluster which can encode 6 enzymes catabolizing catechol to acetyl-CoA. In this study, nucleotide sequences of tomFD gene encoding 4-hydroxy-2-