

# Effects of wogonin, a plant flavone from *Scutellaria radix*, on skin inflammation: in vivo regulation of inflammation-associated gene expression.

[Chi YS](#)<sup>1</sup>, [Lim H](#), [Park H](#), [Kim HP](#).

**Author information** : College of Pharmacy, Kangwon National University, Chunchon 200-701, South Korea.

<https://www.ncbi.nlm.nih.gov/pubmed/14505806>

## Abstract

Flavonoids from plant origin show anti-inflammatory activity in vitro and in vivo. In addition to inhibition of inflammation-associated enzymes, such as cyclooxygenases (COX) and lipoxygenases, they have been found to regulate the expression of inflammation-associated proteins from in vitro experiments. In order to prove in vivo behavior and the potential for beneficial use against inflammatory skin disorders, the effect of wogonin (5,7-dihydroxy-8-methoxyflavone) on in vivo expression of several inflammation-associated genes was examined in the intact as well as in the inflamed mouse skin by reverse transcriptase-polymerase chain reaction analysis. When applied topically on the intact skin, only a high dose treatment of wogonin (1000 microg/ear/3 days) slightly increased COX-1 and fibronectin mRNA. On the other hand, wogonin at the doses of 250-1000 microg/ear/3 days potently lowered mRNA levels of COX-2 and tumor necrosis factor-alpha with less effect on intercellular adhesion molecule-1 and interleukin-1beta in a sub-chronic skin inflammation model of tetradecanoylphorbol-13-acetate-induced ear edema (multiple treatment). The decrease of prostaglandin E(2) concentration (27.3-34.3%) was concomitantly observed in the wogonin-treated groups. A similar effect was also observed in an acute inflammation model of arachidonic acid-induced ear edema. From the present study, wogonin was proved to differentially regulate the expression of inflammation-associated genes in vivo and to become a useful therapeutic agent for skin inflammatory diseases mainly due to its modulation of the expression of proinflammatory molecules.