

# Scutellaria baicalensis Ameliorates Acute Lung Injury by Suppressing Inflammation In Vitro and In Vivo.

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## Abstract

Scutellaria baicalensis has been widely used as both a dietary ingredient and traditional herbal medicine in Taiwan to treat inflammation, cancer, and bacterial and viral infections of the respiratory tract and gastrointestinal tract. This paper aims to investigate the in vitro and in vivo anti-inflammatory effects of *S. baicalensis*. In HPLC analysis, the fingerprint chromatogram of the water extract of *S. baicalensis* (WSB) was established. The anti-inflammatory effects of WSB were investigated using lipopolysaccharide (LPS)-stimulated mouse macrophage (RAW264.7) in vitro and LPS-induced lung injury in vivo. WSB attenuated the production of LPS-induced nitric oxide (NO), tumor necrosis factor-alpha (TNF-[Formula: see text]), interleukin-[Formula: see text] (IL-1[Formula: see text]), and IL-6 in vitro and in vivo. Pretreatment with WSB markedly reduced the LPS-induced histological alterations in lung tissues. Furthermore, WSB significantly reduced the number of total cells and the protein concentration levels in the BALF. WSB blocked protein expression of inducible NO synthase (iNOS), cyclooxygenase-2 (COX-2), phosphorylation of I[Formula: see text]B-[Formula: see text] protein and MAPKs in LPS-stimulated RAW 264.7 cells and LPS-induced lung injury was also blocked. This study suggests that WSB possesses anti-inflammatory effects in vitro and in vivo, and the results suggested that WSB may be a potential therapeutic candidate for the treatment of inflammatory diseases.