

Extracts of *Scutellariae Radix* inhibit low-density lipoprotein oxidation and the lipopolysaccharide-induced macrophage inflammatory response.

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Abstract

Traditional herbal formulas made from *Scutellariae Radix* (SR), the root of *Scutellaria baicalensis*, have previously been used in the treatment of inflammatory diseases, such as atherosclerosis. The aim of the present study was to investigate the effects of SR on low-density lipoprotein (LDL) oxidation and inflammation in macrophages, which are early events in the development of atherosclerosis. High-performance liquid chromatography photo-diode array analysis was used to obtain a three-dimensional chromatogram of SR. The antioxidative effects of SR were evaluated by determining its scavenging activities against ABTS and DPPH radicals. The inhibitory effect of SR on LDL oxidation was examined using a thiobarbituric acid-reactive substance assay and a relative electrophoretic mobility assay. In addition, the anti-inflammatory effects of SR were evaluated in lipopolysaccharide (LPS)-induced RAW264.7 murine macrophage cells. The results showed that SR exhibited radical-scavenging activities in a dose-dependent manner; in addition, SR attenuated the Cu²⁺-induced oxidation of LDL as well as significantly inhibited nitric oxide (NO) production and inducible NO synthase (iNOS) expression in LPS-induced RAW264.7 cells. Furthermore, SR induced the protein expression of heme oxygenase-1 (HO-1) in RAW264.7 cells. In conclusion, the results of the present study demonstrated that SR decreased the oxidation of LDL and suppressed inflammatory responses in macrophages, which occurred at least in part via the induction of HO-1. These results therefore suggested that SR may be a potential therapeutic agent for the treatment of atherosclerosis.