Heme oxygenase-1 mediates the inhibitory actions of brazilin in RAW264.7 macrophages stimulated with lipopolysaccharide..

蔡卓城

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摘要

Abstract

Brazilin, the main constituent of Caesalpinia sappan L., is a natural red pigment that has been reported to possess anti-inflammatory properties. This study aimed to identify a novel anti-inflammatory mechanism of brazilin. We found that brazilin did not cause cytotoxicity below 300 microM, and activated heme oxygenase-1 (HO-1) protein synthesis in a concentration-dependent manner at 10-300 microM in RAW 264.7 macrophages without affecting mRNA transcription of HO-1. Additionally, brazilin increased bilirubin production and HO-1 activity in RAW 264.7 macrophages. In lipopolysaccharide (LPS)-stimulated macrophages, brazilin suppressed the release of nitric oxide (NO), prostaglandin E(2) (PGE(2)), interleukin (IL)-1beta and tumor necrosis factor-alpha (TNF-alpha), and reduced the expression of inducible nitric oxide synthase (iNOS). A specific inhibitor of HO-1, Zn(II) protoporphyrin IX, blocked the suppression of NO production, cytokines release and iNOS expression by brazilin. These results suggest that brazilin possesses anti-inflammatory actions in macrophages and works through a novel mechanism involving the action of HO-1.