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Anti-inflammatory effect of guggulsterone on inflammatory responses through ROS-HO-1 axis**Sung-Joo Park, Gi-Sang Bae and Seung-Heon Hong**
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Guggulsterone (GS) is a phytosterol that has been used to treat inflammatory diseases such as colitis, obesity and thrombosis. Although many previous studies have examined the anti-inflammatory activities of GS, the specific effect and mechanism of GS on lipopolysaccharide (LPS)-induced inflammation and endotoxemia have not been examined. Therefore, we investigated the anti-inflammatory action of GS on LPS-induced inflammatory responses on murine peritoneal macrophages and in septic mice. In the mouse endotoxemia model, GS prolonged survival and inhibited inflammatory mediators such as interleukin (IL)-1 β , IL-6 and tumor necrosis factor- α (TNF- α) and also inhibited the organ injury. In murine peritoneal macrophages, GS significantly inhibited production of nitric oxide (NOS) and COX-derived prostaglandin PGE₂, as well as IL-1 β and IL-6 and TNF- α . Furthermore, the anti-inflammatory activities of GS were mainly through heme oxygenase-1 (HO-1) induction, which was mediated by GSH depletion and ROS production from endoplasmic reticulum (ER). The ROS mediated by GS caused the phosphorylation of GSK3 β (ser9/21) and p38 and leads to translocation of nuclear factor (erythroid-derived 2)-like 2 (NRF2) which ultimately could induce HO-1. These results suggest that GS exerts anti-inflammatory responses through ROS -HO-1 axis.

Biography

Sung-Joo Park is a Professor of Wonkwang University in South Korea, and majored in Korean Traditional Medicines and Immunology. He has many focuses on inflammatory diseases such as pancreatitis, sepsis, obesity and asthma. He has many experimental models and molecule detection techniques to examine the pathophysiology and possible drug of the diseases. Recently, he mostly studied about acute pancreatitis and sepsis and reported many papers about them.

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