Hee Sun Byun et al., J Microb Biochem Technol 2018, Volume 10
DOI: 10.4172/1948-5948-C1-038

Effect of inflammatory inhibition in rheumatoid fibroblast-like synoviocytes through two polypeptides, extracts from Rubia philippinensis

Hee Sun Byun and **Gang Min Hur**
Chungnam National University, South Korea

Rheumatoid arthritis (RA) is a chronic inflammatory disease by autoimmune disorder that primarily affects joints. We studied the isolated two polypeptides (Rp53, Rp54) from Rubia philippinensis, traditional medicine plant, about anti-inflammation effects in fibroblast-like synoviocytes (FLS) derived from patients with RA. Here we found that the Rp53 strongly inhibited the nuclear factor kB (NF-κB) signaling pathway induced by TNFα, but not that induced by IL-1β. Analysis of the upstream signaling events affected by Rp53 revealed that it strikingly inhibited the TNF-induced recruitment of TNFR1-associated death domain protein (TRADD) and receptor-interacting protein (RIP) to TNFR1. Interestingly, Rp53 reduced the interaction with TNFR1 to TNF cytokines and enhanced the activation of the mitogen-activated protein (MAP) kinase. According to these findings, Rp53, the polypeptides induced the proteolytic cleavage of TNF-R1 and its release into the culture medium. That was the ectodomain shedding of TNF receptor 1 by TNF–α–converting enzyme (TACE). Along with the TACE inhibitor TAPI-2, the p38 kinase inhibitor SB203580 suppressed the ectodomain shedding of TNF receptor 1 induced by Rp53. Thus, our results indicate that Rp53 induces the TACE-dependent ectodomain shedding of TNF receptor 1 through the activation of p38 MAP kinase, and thereby inhibits the TNFα induced NF–κB signaling pathway in RA-FLS cells.

Biography

Hee Sun Byun currently works at Department of Pharmacology, Research Institute for Medical Science, Infection Signaling Network Research Center, College of Medicine, Chungnam National University, Daejeon 301-131, Korea.

heesunbyun@gmail.com

Notes: