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Abstract

2-Styrylchromones Inhibit IL-1β-Induced Inflammatory Mediators' Production in Human Fibroblast-like Synoviocytes †

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Abstract: Rheumatoid arthritis (RA) is a progressive and chronic autoimmune disease that is characterized by persistent synovial inflammation and irreversible cartilage and bone damage that affects the synovial joints and adjacent tissues. Presently, effective drugs that can control RA process remain an unmet need. The role of fibroblast-like synoviocytes (FLS) on synovial inflammation initiation and progression makes these cells natural targets for the search for new effective molecules to stop disease progression. 2-Styrylchromones (2-SC) feature a wide range of biological properties, including antioxidant and anti-inflammatory activities. The present study investigates the effect of six hydroxylated and methoxylated 2-SC on the IL-1β-induced increase of •NO and iNOS levels in human FLS, pointing the role of NF-κB activation in the process. From the tested 2-SC, the one presenting two OCH_3 at C-5 and C-7 on A-ring and a catechol group on B-ring, significantly reduced iNOS expression and •NO production. These effects seemed to be partially mediated by the reversion of IL-1β-induced cytoplasmic IkBα disappearance and nuclear p65 increase. These findings may be of great value in the development of new 2-SC which should be further explored and carefully evaluated to reveal their full potential on the treatment of RA.

Keywords: Rheumatoid arthritis; human fibroblast-like synoviocytes; 2- styrylchromones; inflammation

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