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Effect of sinomenine on the expression of rheumatoid arthritis fibroblast-like synoviocytes MyD88 and TRAF6

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ABSTRACT. The effect of sinomenine (SIN) on the toll-like receptor (TLR) signal transduction pathway as well as the expression of myeloid differentiation factor 88 (MyD88) and tumor necrosis factor (TNF) receptor-associated factor-6 (TRAF6) was investigated. SIN inhibition of rheumatoid arthritis (RA) fibroblast-like synoviocytes (FLS) proliferation and RA cartilage and subchondral bone destruction was also investigated. RA-FLS were cultured *in vitro* and the intracellular alkaline phosphatase (ALP) activity was determined in order to obtain the optimal drug concentration. The rate of cell proliferation was determined. Fluorescence quantitative polymerase chain reaction (PCR) was applied to determine the MyD88 and TRAF-6 gene expression and western blot was used to detect the MyD88 and TRAF-6 protein expression. The ALP activity in the SIN groups was lower than that in the control group, among which the 0.5 mM SIN group had the lowest ALP activity ($P < 0.01$). The rate of RA-FLS proliferation detected by CCK-8 assay in the 0.5-mM SIN group was lower than that in

the control group (P < 0.01) and was the highest 4 days after SIN induction. Gene and protein expression of MyD88 and TRAF-6 were downregulated significantly in the 0.5-mM SIN group compared to that in the control group (P < 0.01). SIN effectively inhibited MyD88 and TRAF-6 expression in RA-FLS, which may be one of the important molecular mechanisms involved in RA treatment and prevention of cartilage and subchondral bone destruction.

Key words: Tumor necrosis factor receptor associated factor-6; Sinomenine; Rheumatoid arthritis; Fibroblast-like synoviocytes; Myeloid differentiation factor 88

