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www.elsevier.com/locate/ejphar

PII: S0014-2999(18)30015-3
DOI: <https://doi.org/10.1016/j.ejphar.2018.01.009>
Reference: EJP71610

To appear in: *European Journal of Pharmacology*

Received date: 15 November 2017
Revised date: 20 December 2017
Accepted date: 10 January 2018

Cite this article as: Ahmed Gaafar Ahmed Gaafar, Basim Anwar Shehata Messiha and Ahmed Mohamed Labib Abdelkafy, Nicorandil and theophylline can protect experimental rats against complete Freund's adjuvant-induced rheumatoid arthritis through modulation of JAK/STAT/RANKL signaling pathway, *European Journal of Pharmacology*, <https://doi.org/10.1016/j.ejphar.2018.01.009>

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Nicorandil and theophylline can protect experimental rats against complete Freund's adjuvant-induced rheumatoid arthritis through modulation of JAK/STAT/RANKL signaling pathway

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Abstract

Signaling pathways are interesting fields of study of pathogenesis and treatment trials. We elucidated the possible protective effects of nicorandil (15 mg/kg/day) and theophylline (20 mg/kg/day) on experimentally-induced RA, focusing on the role of JAK (Janus Kinase) / STAT (Signal Transducer and Activator of Transcription) / RANKL (Receptor Activator of Nuclear factor-Kappa B Ligand) / cytokine signaling pathway. Four sets of experiments were performed. First, effect of test agents on normal animals was evaluated. Second, effect of test agents was evaluated on Complete Freund's Adjuvant (CFA; 0.3 ml, s.c.)-induced RA to investigate anti-arthritis effect. Third, effect of test agents was evaluated on growth hormone (GH; 2 mg/kg/day, s.c.)-induced stimulation of JAK/STAT/RANKL/cytokine signaling pathway to investigate the role of this signaling pathway in their anti-arthritis effect. Fourth, the effect of test agents was

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