PRINT: ISSN 0972-3757 ONLINE: ISSN 2456-6330
International Journal of
HUMAN GENETICS

Full text open access online (Since 2001)
© Kamla-Raj IJHG 2025
PRINT: ISSN 0972-3757 ONLINE: ISSN 2456-6330
Int J Hum Genet, 25(4): 195-204 (2025)
DOI: 10.31901/24566330.2025/25.04.920

miRNA-146a Inhibits LPS-induced Inflammation in THP-1 Cell Model of Kawasaki Disease

Xin Zheng*, Shanghong Tang and Hairan Ma

The Pediatrics Department of Huizhou Central People's Hospital, Huizhou, Guangdong, 516001

KEYWORDS Apoptosis. Inflammation. Kawasaki Disease. Lipopolysaccharide. miRNA-146a. Proliferation

ABSTRACT This study investigated physiological effects of miRNA-146a in Kawasaki disease with THP-1 cells. An inflammatory Kawasaki disease-like environment was established in THP-1 cells with lipopolysaccharide induction, which were then transfected with miRNA-146a mimics or a control. Quantitative reverse transcription polymerase chain reaction (qRT-PCR) and enzyme-linked immunosorbent assay (ELISA) analyses demonstrated that miRNA-146a significantly downregulated the expression of key pro-inflammatory cytokines, including interleukin (IL)-1β, IL-6, and tumour necrosis factor (TNF)-α. After Annexin V/PI application, flow cytometric technique was used to quantify apoptosis, revealing a marked reduction in both early and late apoptotic cells following miRNA-146a overexpression. Western blot analysis further indicated increased anti-apoptotic B-cell lymphoma 2 (Bcl-2) expression, as well as decreased caspase-3 activation and BCL2-Associated X (Bax) expression. By demonstrating miRNA-146a's critical function in attenuating inflammatory responses and suppressing apoptosis, this study positions it as a promising novel therapeutic target for Kawasaki disease.