

# **Expression and regulation of Toll-like receptor 2 by IL-1beta and fibronectin fragments in human articular chondrocytes**

李建和

Su SL;Tsai CD;Lee CH;Salter DM;Lee HS.

摘要

## **Abstract**

**OBJECTIVE:** The objective of this study was to examine expression and regulation of Toll-like receptor 2 (TLR2) in human articular chondrocytes. **METHODS:** Human articular chondrocytes were enzymatically isolated from normal and osteoarthritic knee cartilage. Immunohistochemistry, Western blotting, and reverse transcriptase-polymerase chain reaction (RT-PCR) were used to assess the expression of toll-like receptors. Following stimulation of chondrocytes in vitro by IL-1beta and fibronectin proteolytic fragments, the relative levels of mRNA for TLR2 were determined by quantitative real-time PCR. MyD88 activation and nuclear factor-kappaB (NF-kappaB) translocation were evaluated by immunoprecipitation and electrophoretic mobility shift assay, respectively. **RESULTS:** Human articular chondrocytes mainly expressed TLR1, 2, 5 by RT-PCR. Protein expression of TLR2 was also identified in adult human articular cartilage. TLR2 was upregulated following IL-1beta and fibronectin proteolytic fragments stimulation in primary cultures of osteoarthritic articular chondrocytes. Fibronectin proteolytic fragments-induced TLR2 upregulation involved an IL-1beta autocrine/paracrine pathway. **CONCLUSIONS:** TLR2 is expressed in human articular cartilage and is upregulated by proarthritic agents including IL-1beta and fibronectin fragments. Signaling through TLR is a novel pro-inflammatory mechanism in osteoarthritis and targeting of these signaling pathways may be of value in treatment of degenerative joint disease.