

Drs. Moon and Min reply

To the Editor:

We highly appreciate the interest¹ in our paper² suggesting the potential role of cytokine interleukin 34 (IL-34) in rheumatoid arthritis (RA) pathogenesis. Besides our study, there have been other studies suggesting the possible pathophysiological role of IL-34 in human RA^{3,4,5}. While there are conflicting results, it could be speculated that IL-34 can contribute to the structural joint damage and/or systemic osteoporosis in inflammatory arthritis, including RA and ankylosing spondylitis⁴. In our study, there was no significant association between the total Sharp score (TSS) and the serum level of IL-34. However, a study by Chang, *et al*⁴ showed that baseline IL-34 levels were positively correlated to ΔSHS (modified Sharp/van der Heijde score)/year and also rheumatoid factor (RF) in patients with RA, suggesting the association between rapid radiographic progression and high circulating IL-34 levels. It should be noted that the radiographic damage score used in our study (TSS) was different from ΔSHS. More interestingly, our study demonstrated that the synovial fluid (SF) level of IL-34 was positively correlated with the SF receptor activator of nuclear factor-κB concentration, indicating the potential role of IL-34 in increased osteoclastogenesis in RA. Basically, both IL-34 and colony-stimulating factor 1 (CSF-1) are common ligands for the CSF-1 receptor, highly suggesting a pro-osteoclastogenic role of IL-34. Although further studies are needed to determine whether IL-34 occupies a dominant role in RA pathogenesis rather than CSF-1, previous studies demonstrating the pro-osteoclastogenic role of IL-34 and its response to proinflammatory cytokines such as tumor necrosis factor-α^{6,7} suggested that IL-34 can be a potential treatment target in human RA, especially in the aspect of joint destruction. IL-34 concentrations were higher in seropositive RA³. That finding is consistent with our study. We also found that serum IL-34 levels were positively correlated with RF and anticyclic citrullinated peptide antibody titers².

Taken together, previous studies including our paper have suggested the possible pathophysiological roles of IL-34 in RA. However, further studies are needed to reveal more roles of IL-34 in RA pathogenesis, including in terms of autoantibody production.

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