Background Accumulating evidence suggests an important role for interleukin 17 (IL-17) in the pathogenesis of several inflammatory diseases, including rheumatoid arthritis (RA). IL-17A has been well studied in models of arthritis, but little is known about the relative expression of IL-17A, IL-17F, and their receptors in human synovial tissue.
Objective To determine the expression of IL-17A, IL-17F and their receptors IL-17RA and IL-17RC in synovial tissues of patients with RA, psoriatic arthritis (PsA) and osteoarthritis (OA).
Methods Synovial biopsy specimens were obtained by arthroscopy from patients with RA (n=13), PsA (n=15) and inflammatory OA (n=14). For comparison synovial tissues from non-inflammatory controls (n=7) were included. Immunohistological analysis was performed using monoclonal antibodies specific for IL-17A, IL-17F, IL-17RA and IL-17RC. Stained sections were evaluated by digital image analysis.
Results Levels of IL-17A, IL-17F, IL-17RA and IL-17RC were abundantly present in synovial tissues of all patient groups and highly variable between patients. Digital image analysis showed a significant increase of IL-17A and IL-17RC, but not of IL-17F and IL-17RA in patients with arthritis compared to non-inflamed control tissues, while the expression of IL-17A, IL-17F and IL-17RA was similar between the different patient groups. Expression of IL-17RC in the synovial lining was significantly increased in PsA compared to OA patients.
Conclusions Increased expression of IL-17A is not restricted to synovial tissues of RA patients but also observed in other forms of inflammatory arthritis. In contrast, the expression of IL-17F is not significantly increased. IL-17A blockade could provide a novel therapeutic approach in a variety of arthritides.

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L G M van Baarsen,[1] M C Lebre,[1] D van der Coelen,[1] B C Snoek,[1] D M Gerlag,[1] P P Tak[1] *[1]Division of Clinical Immunology and Rheumatology, Academic Medical Center, University of Amsterdam, Amsterdam, The Netherlands*

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