THERAPY

ANTI-INFLAMMATORY HOPE FOR AIN457

Blocking the action of interleukin (IL)-17A using antibodies might be a safe and effective way to treat autoimmune diseases. New data from clinical trials of the fully human antibody, AIN457, in rheumatoid arthritis (RA), psoriasis and noninfectious uveitis, show that targeting IL-17A—produced by type 17 helper T cells—interrupts inflammation and reduces disease activity. Furthermore, an analysis of psoriatic skin samples before and after treatment with AIN457 revealed downregulation of many inflammatory mediators. "Blocking IL-17A," explains Dhavalkumar Patel, corresponding author of the report, "not only affects pathways and targets downstream of IL-17A, but interrupts the entire inflammatory cascade."

A total of 104 patients were enrolled in the proof-of-concept trials, in which adverse events were similar in the placebo and treatment groups. One or two doses of the antibody produced significant reductions in disease activity in the RA and psoriasis treatment groups, compared with the placebo groups, and effects in the uveitis cohort comparable to those previously reported for infliximab. Responses were rapid, with American College of Rheumatology 20% response rates in patients with RA of 50% (versus 31% for placebo) by week 4, which were maintained at week 16. In psoriasis and uveitis, meaningful clinical responses occurred as early as week 2.

The authors hypothesize that IL-17A participates in the pathogenesis of RA, and is the pathogenic driver of psoriasis and noninfectious uveitis. Indeed, they expect that this cytokine has a general role in autoimmunity. "We are quite excited by the results and believe that blocking IL-17A will benefit patients with a wide variety of autoimmune diseases," says Patel. Now, larger phase II and III trials in RA, psoriasis and uveitis are needed, alongside investigations of the efficacy of AIN457 in other autoimmune diseases.

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Original article Hueber, W. *et al*. Effects of AIN457, a fully human antibody to interleukin-17A, on psoriasis, rheumatoid arthritis, and uveitis. *Sci. Transl. Med.* **2**, 52–72 (2010)