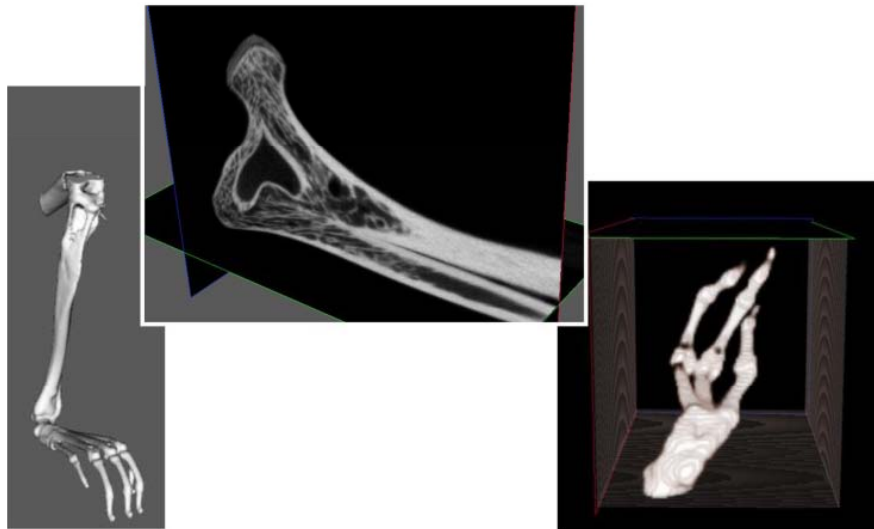


# COLLAGEN INDUCED ARTHRITIS

Collagen-induced arthritis (CIA) is an animal model of rheumatoid arthritis (RA) that is widely used to address questions of disease pathogenesis and to validate therapeutic targets. Arthritis is induced in mice or rats by immunization with heterologous type II collagen in adjuvant. Susceptibility to collagen-induced arthritis is strongly associated with major histocompatibility complex class II genes, and the development of arthritis is accompanied by a robust T-cell and B-cell response to type II collagen .



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## **Pathological Features of CIA**

The chief pathological features of CIA include a proliferative synovitis with infiltration of polymorphonuclear and mononuclear cells, pannus formation, cartilage degradation, erosion of bone, and fibrosis. As in RA, pro-inflammatory cytokines, such as tumor necrosis factor alpha ((TNF- $\alpha$ ), interleukin-1 $\beta$  (IL-1 $\beta$ ) and IL-6 are increased in CIA. Biological therapies designed to interfere with these mediators are active in these models.

## **Measurements**

Disease activity is assessed by measuring swelling in the affected joints (paw volume or thickness) over time. Treatments can be assessed in either prophylactic or therapeutic testing paradigms.

Additional measure of disease activity include evaluation of serum IL-1 $\beta$ , IL-6, C-reactive protein (CRP) or serum amyloid A (SAA), and erythrocyte sedimentation rate. Bone lesion scoring conducted by PET.

## **General Outline of Study**

CIA can be induced in either rats or mice using bovine type II collagen. Prophylactic studies in rats are carried out over 28 days, while therapeutic studies require a 14 day protocol. Similarly in mice, prophylactic studies require 42 days as opposed to 14 days in a therapeutic experimental design.

## **Expertise**

The director of Inflammation Services comes to MIR with over 22 years of research experience in conducting and directing studies in inflammation and cardiovascular therapeutics. Additional models that are in development in our Inflammation Services group include adjuvant-induced polyarthritis, carrageenan-induced footpad edema, and delayed-type hypersensitivity assays. Custom clinical biochemistry assays can be added per client request.

## **MIR:**

If you would like more information on this, or any other MIR service, please feel free to contact the company using the information given below. MIR can also set up a webinar conference to discuss services, technology, capabilities, strategies and protocol design. Let MIR help you meet your preclinical research needs.