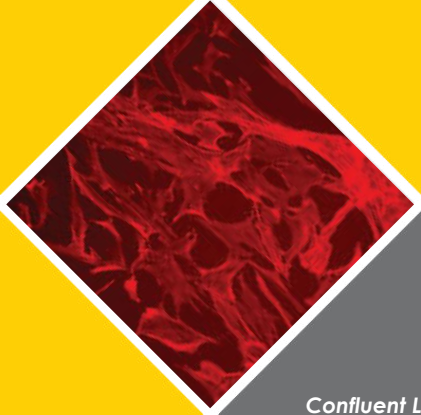
Autoimmune Diseases

RHEUMATOID ARTHRITIS



Confluent Layer of RA Synoviocytes

Background

Rheumatoid arthritis is a chronic systemic inflammatory disease of unknown etiology, affecting approximately 1% of adult general population.

The triggering event in the pathogenesis of RA is thought to be the activation of T cells by unknown antigens, which results in proliferation of synoviocytes, endothelial cells and other proinflammatory cells, as well as induction of autoantibody formation and secretion of proinflammatory cytokines and proteases

Pathology Model

Human fibroblasts treated with synovial fluid derived from patients (patient stratification according to therapeutical indication is possible) will be used as a model of rheumatoid arthritis.

In our lab we have recently demonstrated that exposure to synovial fluid from patients at different time points (i.e. from 24hours to 7 days) better mimics in vitro the RA pathophysiological condition, with respect to classical treatment with TNFα (Casnici et al. *Mediators of Inflammation*, 2014).

Readouts

The following parameters will be taken into consideration:

- **Immunofluorescence:** qualitative evaluation of the expression of cytoskeletal markers in order to evaluate cytoskeletal rearrangement
- **Inflammatory cytokines:** quantitative evaluation of the production of selected panels of pro inflammatory cytokines by multiplex analysis (ie. IL6, IL10, IL15, TNFα etc.)
- **Gene expression:** quantitative evaluation of the expression of selected panels of genes of interest (i.e. IL6, IL10, IL15, TNFα etc.) in challenged cells.
- **Morphological analysis:** qualitative analysis of alterations in cell morphology in challenged cells;
- **Intracellular calcium dynamics:** time-lapse acquisition of intracellular calcium variations following exposure to synovial fluid in the presence/absence of selected Client's compounds.
- **Proliferation:** quantitative evaluation of fibroblasts proliferation