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Current Fields of Research
Our translational research focuses on the immunopathology of chronic inflammatory arthritis, in particular rheumatoid arthritis and spondyloarthritis (including ankylosing spondylitis and psoriatic arthritis). We aim to identify the immune alterations triggering, driving and perpetuating these diseases in order to a) understand the pathophysiology, b) develop biomarkers for prediction, diagnosis and prognosis (including treatment response), and c) develop and validate innovative targeted therapies.

To this purpose, we use a translational approach combining:

1) direct analysis of relevant target tissues: our center has a large expertise in sampling synovial biopsies in different types and stages of arthritis. We also recently developed the technology to sample lymph nodes. We perform different types of direct analysis on these samples including: immunohistochemistry, FACS analysis and sort of specific cell populations, gene expression profiling, and TCR/BCR repertoire analysis.

2) In vitro analysis of relevant human tissues and cells: this includes analysis of signalling pathways such as non-canonical NFkappB, stress responses, epigenetic modifications, and cytokine production. Of particular interest is our ex vivo whole biopsy culture which allows to study ex vivo the effect of targeted interventions on synovial inflammation.

3) Animal models: to complement our human ex vivo work, we use CIA and CAIA as models for RA and HLA-B27 tg rats and tmTNF tg mice as models for SpA.
4) Proof-of-concept and mechanism-of-action trials in human arthritis (RA and SpA), in which we do not only study the clinical but also biological effects of novel targeted therapies. Therefore, we obtain the previously mentioned tissue samples before and after treatment and study biological effects in vivo and ex vivo.

We combine these different research strategies in a number of key projects, including:
- identification and characterization of autoreactive T and B cell clones in RA
- analysis of immune alterations in the lymph nodes in preRA and early RA
- prevention of RA by rituximab treatment in preRA
- treatment of refractory RA by N Vagus stimulation
- non-canonical NFκB signalling in chronic inflammation
- epigenetic modifiers in arthritis
- targeted IL-17/IL-23 blockade in AS/PsA

Selected Publications
Current Funding
American College of Rheumatology
Center for Translational Molecular Medicine
Dutch Arthritis Association
EU Autocure
NWO and ZON-MW Research Foundations
Pharmaceutical industry

Training of Fellows in Research
We have established fellowships dedicated to training in arthroscopy, clinical studies, immunohistochemistry, and molecular biology

WebPages
http://www.amc.nl
http://www.amc.nl/index.cfm?sid=525