EXPERIMENTAL RHEUMATOLOGY

Metabolic syndrome and OA: the role of PCSK9 in regulating LDL levels and the promotion of inflammation in OA.

Clinical relevance

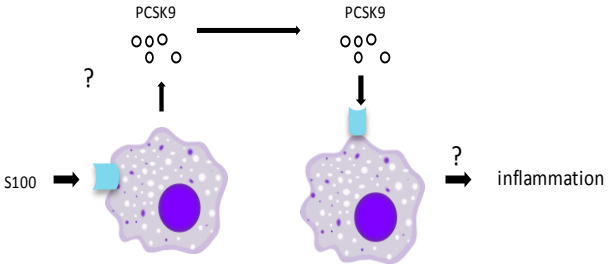
Osteoarthritis (OA) is the most common disabling disease worldwide, characterized by joint pain and immobility. OA affects the whole joint, including articular cartilage, synovium, subchondral bone and ligaments. Synovial inflammation is present in approximately 50% of OA patients and aggravates cartilage degradation and ectopic bone formation in the joint. Currently, no curative treatment options are available. Patients receive symptomatic treatment and eventually joint replacement.

Background

One important risk factor for OA is metabolic syndrome (MetS), which is characterized by abdominal obesity, elevated blood glucose levels, high blood pressure, increased triglyceride low density lipoprotein (LDL) and decreased high density lipoprotein (HDL) levels, particles responsible for the transport of cholesterol. One important factor in MetS is hypercholesterolemia. High systemic cholesterol levels are associated with the development and progression of OA. PCSK9 elevates cholesterol levels by binding to the LDL receptor, leading to its internalization and subsequent degradation.

Goals

We aim to gain insight in the role of PCSK9 in macrophage activation during inflammatory OA. We will investigate the relation between a known inflammatory factor in OA (S100) and PCSK9. Additionally, we will analyze if these inflammatory mediators mediate oxLDL uptake and elucidate if this process aggravates synovial inflammation.



We offer

An internship position in a laboratory that is internationally renowned for its research combining diagnostics and therapeutic strategy in OA. You will participate in an interesting project where you will use different techniques, such as cell culture, RNA isolation, qPCR and FACS. Additionally, you will be given the opportunity to improve your scientific thinking, presentation skills and academic writing.

Contact

Department: Experimental Rheumatology
Supervisor: Yvonne van Gemert
Email address: Yvonne.vangemert@radboudumc.nl
Contact person: Peter van Lent
Telephone number: 024-3610512
Email address: Peter.vanlent@radboudumc.nl
Website: www.experimentalrheumatology.nl

Radboudumc
university medical center