Press release

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Basic information

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Department of: Biomedicine

Main supervisor: Bent Deleuran

Title of dissertation: The interplay between fibroblast-like synoviocytes, galectin-3, galectin-9, and the T cell co-stimulatory receptor 4-1BB in rheumatoid arthritis

Date for defence: 26/03/2021 at (time of day): 15.00 Place: Online — Zoom

Press release (Danish)

Sammenspillet mellem sygdomsspecifikke synoviale fibroblaster, galectiner og den co-stimulerende T celle receptor 4-1BB i leddegigt.

I leddegigt er både sygdomsspecifikke synoviale fibroblaster, galectiner og den co-stimulerende receptor 4-1BB opreguleret i det inflammerede led og kan modulere den lokale inflammationsproces. Et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Morten Aagaard Nielsen, der forsvarer det d. 26/03/2021.

Sammenspillet mellem immunceller og bindevævsceller i det inflammerede led er afgørende for igangsætningen og fastholdelsen af inflammationen i de afficerde led. Sygdomsspecifikke fibroblaster og den co-stimulerende T celle receptorer 4-1BB kan ændre på den lokale immunaktivering. Galectiner kan interagere med både immunceller og bindevævsceller. Men den præcise rolle af galectiner for sygdomsudviklingen i RA er ikke fuldt klarlagt. I denne afhandling beskriver vi, at både sygdomsspecifikke synoviale fibroblaster, galectiner og den co-stimulerende receptor 4-1BB er opreguleret i det inflammerede led og videre, at de er i stand til at ændre den lokale inflammationsproces. Vi beskriver en hidtil uafklaret mekanisme, hvorved de inflammatoriske fibroblaster og effektor CD4+ T celler bliver styret af mikromiljøet i de inflammerede led. Da inflammation ikke er generisk men afhængig af den lokale mikromiljø, foreslår vi at sygdoms specifikke fibroblaster, Galectiner og 4-1BB på T celler samt deres indbyrdes sammenspil kan være attraktive og relativt specifikke mål for nye behandlinger i leddegigt. Forsvaret af ph.d.-projektet er offentligt og finder sted den 26/03 kl. 15.00 på Zoom. Titlen på projektet er ”The interplay between fibroblast-like synoviocytes, galectin-3, galectin-9, and the T cell co-stimulatory receptor 4-1BB in rheumatoid arthritis”. Yderligere oplysninger: Ph.d.-studerende Morten Aagaard Nielsen, e-mail: morten.a.nielsen@biomed.au.dk, tlf. 28708924.

Bedømmelsesudvalg:

Professor, consultant Trine Mogensen (Chairman), Institute for Biomedicine, Aarhus University, Denmark.

Professor, Director of Scientific Affairs Michael Croft, Center for Autoimmunity and Inflammation, La Jolla Institute for Immunology, La Jolla, CA, USA.

Professor Claus Henrik Nielsen, Institute for Inflammation Research, Center for Rheumatology and Spine Diseases, Rigshospitalet, Copenhagen University Hospital, Copenhagen, Denmark.

Press release (English)

The interplay between fibroblast-like synoviocytes, galectin-3, galectin-9, and the T cell co-stimulatory receptor 4-1BB in rheumatoid arthritis

In Rheumatoid arthritis (RA), pathological fibroblast-like synoviocytes (FLS), galectins, and the co-stimulatory receptor 4-1BB are all present at the site of pathology and are capable of modulating the local inflammatory outcome. The project was carried out by Morten Aagaard Nielsen, who is defending his dissertation on 26/03/2021.

The interactions between immune cells and stromal cells within the RA synovium play pivotal roles in the initiation and persistence of the inflamed site. In the inflamed synovium, FLS and co-stimulatory receptors as 4-1BB modulate the immunogenic outcome. Furthermore, galectins are capable of multivalently interacting with immune and stromal cells. However, the involvement of galectins in RA pathology have not been fully characterised. Here we report, that in RA, pathological FLS, galectins, and the co-stimulatory receptor 4-1BB are all present at the site of pathology and are capable of modulating the local inflammatory outcome. The work presented in this thesis identifies a so far unrecognized mechanism by which the inflammatory drive from FLS and effector CD4+ T cells is fine-tuned by the microenvironment. Since inflammation is not generic but dependent on the local context, FLS, galectins, and 4-1BB expressed on activated T cells represent attractive and relatively site-specific therapeutic targets. The defence is public and takes place on 26/03 at 15.00 on Zoom. The title of the project is "The interplay between fibroblast-like synoviocytes, galectin-3, galectin-9, and the T cell co-stimulatory receptor 4-1BB in rheumatoid arthritis". For more information, please contact PhD student Morten Aagaard Nielsen, email: morten.a.nielsen@biomed.au.dk, Phone +45 28708924.

Assessment committee:
Professor, consultant Trine Mogensen (Chairman), Institute for Biomedicine, Aarhus University, Denmark.

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