

## Press release

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### Basic information

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Department of: Public Health

Main supervisor: Professor Anneli Sandbæk, Section for General Medical Practice, Department of Public Health, Aarhus University, Denmark

Title of dissertation: Macrophage activation, type 2 diabetes mellitus and complications

Date for defence: Friday 23 March 2018 at (time of day): 1.00 PM Place: Samfundsmedicinsk Auditorium, lecture hall 101, building 1262, Bartholins Allé 4, Aarhus University

Press release (Danish)

Er makrofager et mål for forebyggelse af type 2 diabetes og sygdommens komplikationer?

Fedme kan øge risikoen for udvikling af type 2 diabetes via en betændelseslignende tilstand i kroppen. Blandt mange immunceller spiller især makrofager en afgørende rolle i betændelsesprocessen. Makrofager er dermed interessante, når der skal udvikles nye lægemidler, der på sigt kan forebygge type 2 diabetes og sygdommens alvorlige komplikationer.

Makrofager udskiller proteiner i blodet, som kan måles ved en simpel blodprøve og dermed fortælle noget om graden af makrofag-involvering i forskellige betændelsessygdomme. Sammenhængen mellem et af disse proteiner, sCD163, og type 2 diabetes og sygdommens komplikationer er nærmere undersøgt i et nyt ph.d.-projekt fra Aarhus Universitet. I projektet er blodprøver fra mere end 2800 danskere i enten høj risiko for type 2 diabetes eller med type 2 diabetes blevet analyseret. Blandt danskerne i høj risiko for at udvikle type 2 diabetes er der i ph.d.-projektet fundet en stærk sammenhæng mellem niveauet af sCD163 i blodet og ændringer i insulinfølsomhed og insulinsekretion, hvilket tyder på, at makrofager er involveret allerede ved forstadier til type 2 diabetes. I ph.d.-projektet undersøges desuden sammenhængen mellem niveauet af sCD163 i blodet og komplikationer af type 2 diabetes, herunder hjertekarsygdom og nyresygdom.

Projektet er gennemført af læge Pia Deichgræber, der forsvarer sit ph.d.-projekt d. 23. marts 2018. Forsvaret af ph.d.-projektet er offentligt og finder sted den 23. marts 2018 kl. 13.00 i Samfundsmedicinsk Auditorium, Aarhus Universitet, Bartholins Allé 4, 8000 Aarhus C. Titlen på projektet er "Macrophage activation, type 2 diabetes mellitus and complications". Yderligere oplysninger: Ph.d.-studerende Pia Deichgræber, e-mail: [p.deichgraeber@ph.au.dk](mailto:p.deichgraeber@ph.au.dk).

Bedømmelsesudvalg:

Professor Niels Jessen, Institut for Biomedicin, Aarhus Universitet, Aarhus, Danmark (formand)  
Dr. med. Frederik Persson, Steno Diabetes Center Copenhagen, Gentofte, Danmark  
Professor Christian Herder, Institute for Clinical Diabetology, German Diabetes Center, Düsseldorf, Tyskland

Press release (English)

Are macrophages a target for prevention of type 2 diabetes mellitus and related complications?

Obesity may increase the risk of developing type 2 diabetes via an inflammatory condition in the body. Among many immune cells, the macrophages play a crucial role in the inflammatory process. Macrophages are thus interesting to consider when developing new drugs that may prevent type 2 diabetes and the onset of serious complications.

Macrophages release proteins in the blood. These can be measured by a simple blood test and may thus reveal details about the degree of macrophage involvement in various inflammatory diseases. The association between one of these proteins, the sCD163, and type 2 diabetes and diabetes-related complications has been investigated in a new PhD project from Aarhus University. In the project, blood samples from more than 2800 Danes at high risk of developing type 2 diabetes or already diagnosed with type 2 diabetes have been analyzed. Among the Danes at high risk of developing type 2 diabetes, a strong correlation was found between sCD163 level in the blood and changes in insulin sensitivity and secretion. This could suggest that the macrophages are involved already in the initial stages of type 2 diabetes. The PhD project also explored the correlation between sCD163 level in the blood and complications of type 2 diabetes, including development of cardiovascular diseases and kidney disease.

The project was carried out by medical doctor Pia Deichgræber, who will be defending her PhD dissertation on 23 March 2018. The oral defense is public and takes place on 23 March 2018 at 1.00 pm at the lecture theatre in Samfundsmedicinsk Auditorium, Aarhus University, Bartholins Allé 4, DK-8000 Aarhus C. The project is entitled "Macrophage activation, type 2 diabetes mellitus and complications". Further information: PhD student Pia Deichgræber, e-mail: [p.deichgraeber@ph.au.dk](mailto:p.deichgraeber@ph.au.dk).

Assessment committee:

Professor Niels Jessen, Department of Biomedicine, Aarhus University, Aarhus, Denmark (chairman)  
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