Press release

Please fill in this form and return it to graduateschoolhealth@au.dk in Word format no later than three weeks prior to your defence.

Basic information

Name: Francesco Maria Iena Email: francescomaria.iena@biomed.au.dk Phone: +45 50177114

Department of: Biomedicine

Main supervisor: Associate Professor Janne Lebeck

Title of dissertation: Aquaporin 7 expression in adipose tissue

Date for defence: September 25th, 2020 at (time of day): 2 pm Place: Bartholin 1 (1241-135)

Press release (Danish)

Aquaporin 7 i fedtvæv.

Hermed annonceres afholdelsen af forsvaret af et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af MSc Francesco Maria Iena, der forsvarer det d. 25/9-2020

Fedme er et stadigt voksende problem på verdensplan og udgør en betydelig risikofaktor for udviklingen af en række af sygdomme, herunder type-2-diabetes (T2D). Fedt lagres primært i fedtvæv og når det nedbrydes bliver det til fedtsyrer og glycerol. I fedtvæv faciliterer glycerol kanalen; aquaporin 7 (AQP7) frigivelsen af glycerol, som derefter kan bruges i andre væv til bl.a. dannelse af sukker og fedt. AQP7 er i fedtvæv udtrykt i karrene, samt i fedtcellerne og mangel på AQP7 er blevet associeret med udviklingen af fedme. I dette ph.d.-projekt har jeg bl.a. undersøgt hvorledes at ekspressionen af AQP7 er påvirket i han og hunmus efter 12 og 24 uger med en fedtrig diæt, desuden har jeg undersøgt effekten af Liraglutid, der bruges i behandlingen af T2D. I en anden del af projektet har jeg undersøgt forekomsten af andre aquaporiner i fedtvævet. Desuden har jeg arbejdet med opsætningen af 2 nye metoder til at analysere karrene i fedtvæv; en vævs-clearing teknik, der muliggør mikroskopering af fedtvævsstykker med eller uden immunfarvning, samt isolering af endothelceller fra fedtvæv fra mus ved hjælp af fluorescens-aktiveret celle sortering. Resultaterne fra disse projekter vil blive præsenteret og diskuteret til forsvaret.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 25/9-2020 kl. 14.00 i Bartholin 1 (1241-135), Aarhus Universitet, Wilhelm Meyers Allé 4, 8000 Aarhus C, samt på Zoom (Meeting ID 399 007 6219; invitation link: https://aarhusuniversity.zoom.us/j/3990076219). Titlen på projektet er Aquaporin 7 expression in adipose tissue. Yderligere oplysninger: Ph.d.-studerende Francesco Maria Iena , e-mail: francescomaria.iena@biomed.au.dk, tlf. +45 50177114.

Bedømmelsesudvalg:
Formand for bedømmelsesudvalget:
Lektor Rikke Nielsen, Institut for Biomedicin, Health, Aarhus Universitet

Bedømmer 1.
Professor, Director, Translational Adipose Biology and Obesity Susan K. Fried
Diabetes, Obesity, and Metabolism Institute, Icahn School of Medicine at Mount Sinai, USA

Bedømmer 2:
Professor Stine Falsig Pedersen
Cell Biology and Physiology, Department of Biology, Copenhagen University

Press release (English)

Aquaporin 7 in adipose tissue

Hereby the announcement of the defence of a novel PhD-project from Aarhus University: The project was carried out by MSc Francesco Maria Iena, who is defending his dissertation on 25/9-2020.

Obesity is a growing global health problem since it is a significant risk factor for the development of a range of diseases, including type-2-diabetes. Fat is mainly stored in adipose tissue and when it is hydrolyzed it is turned into fatty acids and glycerol. In adipose tissue, the glycerol channel; aquaporin 7 (AQP7) facilitates the release of glycerol, which is then utilized by other tissues for e.g. glucose and fat synthesis. In adipose tissue, AQP7 is expressed in the bloodvessels as well as in the adipocytes. and lack of AQP7 has been associated with the development of obesity. In the PhD-project I have investigated how the expression of AQP7 is influence by exposure to a high fat diet for 12 and 24 weeks in male and female mice. In addition, the effect of Liraglutide, that is used in the treatment of T2D was also evaluated. In another part of the project I investigated the expression of other aquaporins in adipose tissue. Moreover, during this project I worked with setting up 2 novel methods for analyzing the vessels in adipose tissue: a tissue-clearing technique, that allows the 3-dimentional microscopy of adipose tissue with or without immunohistochemistry and isolation of endothelial cells from mouse adipose tissue using fluorescence activated cell sorting. The results from these project will be presented and discussed at the defence.

The defence is public and takes place on 25/9-2020 at 2 PM in Bartholin 1 (1241-135), Aarhus Universitet, Wilhelm Meyers Allé 4, 8000 Aarhus C, and on Zoom (Meeting ID 399 007 6219; invitation link: https://aarhusuniversity.zoom.us/j/3990076219). The title of the project is Aquaporin 7 expression in adipose. For more information, please contact PhD student Francesco Maria Iena, email: francescomaria.iena@biomed.au.dk, Phone +45 50177114.

Assessment committee:
Chairman of the committee and moderator of the defence
Associate Prof. Rikke Nielsen, Department of Biomedicine, Health, Aarhus University, Aarhus, Denmark

Professor, Director, Translational Adipose Biology and Obesity Susan K. Fried
Diabetes, Obesity, and Metabolism Institute, Icahn School of Medicine at Mount Sinai, USA

Professor Stine Falsig Pedersen
Cell Biology and Physiology, Department of Biology, Copenhagen University, Denmark

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