

Press release

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Basic information

Name: Mette Habekost Email: mhab@biomed.au.dk Phone: +45 40 47 31 01

Department of: Biomedicine

Main supervisor: Mark Denham, Associate Professor, PhD

Title of dissertation: Conversion of Porcine Fibroblast to Neuronal Cells: Production, Characterization and Utility

Date for defence: October 23rd 2020 at (time of day): 13.00-15.00 Place: Online via Zoom.

Press release (Danish)

Konversion af grisefibroblaster til neuronale celler: Produktion, karakterisering og anvendelse

Neurodegenerative sygdomme, såsom Alzheimers (AD) og Parkinsons sygdom, er karakteriseret ved tab af nerveceller i specifikke hjerneområder. De underliggende ætiologier er komplekse, og studier i hjernevæv fra afdøde patienter giver kun indsigt i patogenesens slutstadier. Dyremodeller af sygdommene bruges til at få indsigt i de tidlige sygdomsmekanismer, og et stort dyr, såsom grisen, er en attraktivt model organisme, da den med sit tætte fysiologiske slægtsskab med mennesket har potentiale til troværdigt at gengive sygdomsspecifikke fænotyper. Formålet med dette ph.d.-projekt er at undersøge neuromolekylære forandringer i grisene samt at producere nerveceller fra hudafledte grisefibroblaster in vitro med henblik på at udforske det molekylære grundlag for AD. I projektet benytter vi os af aktuelle metoder til at omprogrammere fibroblaster til inducerede pluripotente stamceller eller direkte til inducerede nerveceller. Derudover undersøger vi, om de inducerede nerveceller bevarer alders-relaterede aspekter af den voksne grisehjerne. I den sidste del af projektet bruger vi hjernevæv og fibroblaster fra transgene grisemodeller af AD til at studere cellulære mekanismer, der bidrager til AD patogenesen. Resultaterne er sammenfattet i et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Mette Habekost, der forsvare det d. 23/10/2020

Forsvaret af ph.d.-projektet er offentligt og finder sted den 23/10/2020 kl. 13.00 online via Zoom. Kontakt venligst hovedvejleder, Mark Denham mden@dandrite.au.dk for møde ID. Titlen på projektet er "Conversion of Porcine Fibroblast to Neuronal Cells: Production, Characterization and Utility". Yderligere oplysninger: Ph.d.-studerende Mette Habekost, e-mail: mhab@biomed.au.dk, tlf. +45 40 47 31 01.

Bedømmelsesudvalg:

Olav Michael Andersen, Lektor, PhD (Formand for bedømmelsesudvalget og moderator ved forsvaret)
Institut for Biomedicine, Aarhus Universitet

Johan Jakobsson, Professor, PhD

Laboratory of Molecular Neurogenetics, Wallenberg Neuroscience Center
Lund Stem Cell Center, Lund University

Carmela Matrone, Lektor, PhD

Department of Neuroscience, Faculty of Medicine, University of Naples

Press release (English)

Conversion of Porcine Fibroblast to Neuronal Cells: Production, Characterization and Utility

Neurodegenerative disorders such as Alzheimer's (AD) and Parkinson's disease are characterized by the death of neurons in specific brain areas. The underlying aetiologies are complex, and disease mechanisms involved in the initiation and progression of the disorders are difficult to study in human post-mortem tissues. Animal models are useful for this purpose, and a large animal, such as the pig, is an attractive model organism since it may recapitulate the phenotypes of the disorders authentically. The aim of this PhD project is to investigate neuromolecular phenotypes in the pigs and to produce neurons from skin-derived pig fibroblasts in vitro to further explore the molecular basis of AD. In this project, we build on current reprogramming strategies to turn the fibroblasts into induced pluripotent stem cells or directly into induced neurons. Additionally, we examine whether the induced neurons recapitulate specific features of the adult pig brain. In the last aspect of the project, we use brain tissues and fibroblasts from genetically engineered pig models of AD to study cellular mechanisms and pathways that may contribute to the pathogenesis. The results of the project will be presented and discussed at the defence. The project was carried out by Mette Habekost, who is defending her dissertation on 23/10/2020.

The defence is public and takes place on 23/10/2020 at 13.00 online via Zoom. Please contact main supervisor, Mark Denham mden@dandrite.au.dk for meeting ID. The title of the project is "Conversion of Porcine Fibroblast to Neuronal Cells: Production, Characterization and Utility". For more information, please contact PhD student Mette Habekost, email: mhab@biomed.au.dk, Phone +45 40 47 31 01.

Assessment committee:

Olav Michael Andersen, Associate Professor, PhD (Chairman)
Department of Biomedicine, Aarhus University

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