

Press release

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Basic information

Name: Henriette Lajgaard Christensen Email: hlch@biomed.au.dk Phone: +45 26221244

Department of: Biomedicine

Main supervisor: Jeppe Prætorius

Title of dissertation: Luminal acid/base transporters in the choroid plexus epithelium

Date for defence: 10.11.2017 at (time of day): 13.00 Place: Lille Anatomisk auditorium (Bygning 1231, lokale 424), Aarhus Universitet

Press release (Danish)

Ny viden om plexus choroideus epitelets rolle i reguleringen af cerebrospinalvæskens pH

I centralnervesystemet spiller cerebrospinalvæsken en vigtig rolle i at holde hjernen sund. Størstedelen af cerebrospinalvæsken bliver produceret af plexus choroideus epitelet, som er et lille væv der findes i hvert af hjernens fire hulrum. En stabil surhedsgrad (pH) i alle kroppens væsker er afgørende for at kunne opretholde normale funktioner. Adskillige studier har vist, at selvom syre-base udsving i blodet overføres direkte til cerebrospinalvæsken, er denne mere modstandsdygtig overfor ændringer i blodets pH end man ville forvente. Man har gættet på, at plexus choroideus epitelet er involveret i reguleringen af cerebrospinalvæskens pH via transport af syre og base til og fra cerebrospinalvæsken, men de molekulære mekanismer bag denne transport har indtil nu været ukendte.

Det overordnede mål for dette projekt var at fastslå, om plexus choroideus epitelet er i stand til at regulere cerebrospinalvæskens pH, og i så fald hvordan. Med en kombination af mange forskellige teknikker har vi vist, at plexus choroideus epitelet i høj grad er i stand til at regulere cerebrospinalvæskens pH, og vi har påvist identiteten af en række forskellige proteiner, som muligvis spiller en rolle i denne sammenhæng. Den opnåede viden fra dette projekt udgør fundamentet for fremtidige undersøgelser af mekanismerne bag reguleringen af cerebrospinalvæskens pH og bidrager samtidig til den eksisterende viden om reguleringen af hjernens pH.

Resultaterne af dette studie er sammenfattet i et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Henriette Lajgaard Christensen, der forsvare det d. 10/11.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 10/11 kl. 13.00 i Lille Anatomisk auditorium (Bygning 1231, lokale 424), Wilhelm Meyers Allé 3, 8000 Aarhus C. Titlen på projektet er "Luminal acid/base transporters in the choroid plexus epithelium". Yderligere oplysninger: Ph.d.-studerende Henriette Lajgaard Christensen, e-mail: hlch@biomed.au.dk, tlf. +45 26221244.

Bedømmelsesudvalg:

Associate professor Ebbe Bødtkjær (chairman and moderator of the defence)
Aarhus Universitet

Professor Martha O'Donnell
UC Davis School of Medicine

Professor Stine Falsig Pedersen
Københavns Universitet

Professor Jeppe Prætorius (main supervisor and non-voting member)
Aarhus Universitet

Press release (English)

New insights into the role of the choroid plexus epithelium in the regulation of cerebrospinal fluid pH

Inside the central nervous system, the cerebrospinal fluid plays an important role in keeping the brain healthy. The majority of the cerebrospinal fluid is produced by the choroid plexus epithelium, which is a small tissue located in each of the four brain cavities. A stable pH is crucial for maintaining normal bodily functions. Several studies have shown that even though acid-base fluctuations in the blood are directly transmitted to the cerebrospinal fluid, cerebrospinal fluid pH is more resistant to changes in blood pH than would be expected. It is hypothesized that the choroid plexus epithelium is involved in the regulation of cerebrospinal fluid pH by secretion and absorption of acid and base. However, the molecular mechanisms behind cerebrospinal fluid pH regulation have remained unknown.

The overall aim of this ph.d. project was to examine whether the choroid plexus epithelium has the capacity to regulate cerebrospinal fluid pH, and if so, which mechanisms carry out this regulation. By a combination of several different techniques we have determined that the choroid plexus epithelium does indeed have the capacity to regulate cerebrospinal fluid pH, and we have uncovered the identity of several of the proteins that might play a role in this phenomenon. The knowledge obtained in this project forms the basis for future investigations of the mechanisms behind this function, and adds to the current understanding of brain pH regulation.

The results of this study have been summarized in a new ph.d. project from Aarhus University, Health. The project was carried out by Henriette Lajgaard Christensen, who is defending her dissertation on November 10th.

The defence is public and takes place on November 10th at 1pm in Lille Anatomisk auditorium (Building 1231, room 424), Wilhelm Meyers Allé 3, 8000 Aarhus C. The title of the project is "Luminal acid/base transporters in the choroid plexus epithelium". For more information, please contact PhD student Henriette Lajgaard Christensen, email: hlch@biomed.au.dk, Phone +45 26221244.

Assessment committee:

Associate professor Ebbe Bødtkjær (chairman and moderator of the defence)
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Professor Stine Falsig Pedersen
University of Copenhagen

Professor Jeppe Prætorius (main supervisor and non-voting member)
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