Press release

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Basic information

Name: Emil Gregersen Email: egregersen@biomed.au.dk Phone: 22710333

Department of: Biomedicine

Main supervisor: Poul Henning Jensen

Title of dissertation: Investigation of oligomeric a-synuclein: in vivo detection and cellular secretion

Date for defence: 30/10/2020 at (time of day): 13:00 Place: Lille Anatomisk auditorium (Bygning 1231, lok. 424)

Press release (Danish)

Studie af aggregering og spredning af alfa-synuclein i Parkinson's sygdom

Parkinson's sygdom, Lewy body demens og multipel system atrofi er neurodegenerative sygdomme, som samlet set betegnes alfa-synucleinopatier. Det præ-synaptiske protein, alfa-synuclein, er dybt involveret i udviklingen af alfa-synucleinopatier, men den nøjagtige årsag er ukendt. Under normale betingelser eksisterer alfa-synuclein hovedsageligt som en ustruktureret monomer. Under sygdomsudvikling aggregerer alfa-synuclein og danner oligomere og fibrillære former, som kan findes i hjernen hos patienter med alfa-synucleinopatier. For bedre at kunne studere de neurotoksiske oligomere har vi udviklet en metode til at detektere aggregeret alfa-synuclein ned til picogram-koncentrationer ved hjælp af et antistof, der specifikt detekterer aggregeret alfa-synuclein. Metoden er efterfølgende blevet anvendt til at sammenligne sammensætningen af alfa-synuclein oligomere i hjernevæv fra afdøde patienter med Lewy body demens med sammensætningen i raske individer. Derudover havde Ph.d.-projektet til formål at undersøge en nyligt identificeret cellulær mekanismes rolle i frigivelsen af aggregeret alfa-synuclein fra celler. Dette er vigtigt viden for at vurdere om den cellulære mekanisme kan være involveret i den prion-lignende spredning af alfa-synuclein imellem hjerneceller.
Resultaterne er sammenfattet i et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Emil Gregersen, der forsvarer det d. 30/10

Forsvaret af ph.d.-projektet er offentligt og finder sted den 30/10 kl. 13 i Lille Anatomisk auditorium (Bygning 1231, lok. 424) , Aarhus Universitet, Wilhelm Meyers Allé 3, Aarhus C. OBS: Grundet Covid-restriktioner kan forsvaret kun overværes af et begrænset antal deltagere. Forsvaret bliver i stedet vist virtuelt via Zoom. Kontakt Emil Gregersen for at modtage et link til at se forsvaret.
Titlen på projektet er "Undersøgelse af alfa-synuclein oligomere: in-vivo detektion og cellulær spredning".
Yderligere oplysninger: Ph.d.-studerende Emil Gregersen, e-mail: egregersen@biomed.au.dk, tlf. 22710333.

Bedømmelsesudvalg:
Assoc. prof. Peter Bross - chairman for bedømmelsesudvalget og moderator af Ph.D.-forsvaret
Department of Clinical Medicine - Research Unit for Molecular Medicine, Aarhus University, Aarhus, Denmark

Associate professor Kostas Vekrellis
Biomedical Research Foundation Academy of Athens, Athens, Greece

Professor Jia-Yi Li
Wallenberg Neuroscience Center, Section for Neuronal Survival, Department of Physiological Sciences, Lund University, Sweden

Press release (English)

Study of aggregation and spreading of alpha-synuclein in Parkinson's disease

The project was carried out by Emil Gregersen, who is defending his dissertation on 30/10.

Parkinson's disease, dementia with Lewy bodies and multiple system atrophy are neurodegenerative disorders collectively known as synucleinopathies. The presynaptic protein α-synuclein is immensely involved in the development of the diseases, but the exact cause is not known. Normally, α-synuclein mainly exists as a disordered monomer, but under disease-development α-synuclein aggregates to form oligomers and fibrils, which can be found in the brain of synucleinopathy patients. To improve the ability to study the neurotoxic oligomers, we developed a method to detect aggregated α-synuclein down to picogram levels by using an antibody specifically detecting aggregated α-synuclein. The method was subsequently used to compare the composition of aggregated α-synuclein in brains from deceased patients suffering from dementia with Lewy bodies to the composition in healthy individuals. In addition, the PhD-project investigated a recently discovered cellular mechanism for its potential role in the release of aggregated α-synuclein. This is important to evaluate if the mechanism is involved in the prion-like spreading of α-synuclein between brain cells.
The defence is public and takes place on 30/10 at 1 PM in Lille Anatomisk auditorium (Bygning 1231, lok. 424) , Aarhus University, Wilhelm Meyers Allé 3, Aarhus C. OBS: Due to Covid-restrictions only a limited number of participants are allowed. Instead the defence will be available via zoom. Please contact Emil Gregersen for a link to view the defence.
The title of the project is "Investigation of oligomeric alpha-synuclein: in vivo detection and cellular secretion.
For more information, please contact PhD student Emil Gregersen, email: egregersen@biomed.au.dk, Phone +45 22710333.

Assessment committee:
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Professor Jia-Yi Li
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