AARHUS UNIVERSITY

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: Filomena Iannuzzi Email: filomena.iannuzzi@biomed.au.dk Phone: +39 3318289619

Department of: Biomedicine

Main supervisor: Carmela Matrone

Title of dissertation: THERAPEUTIC TARGETING OF AMYLOID PRECURSOR PROTEIN TYROSINE 682 RESIDUE IN ALZHEIMER'S DISEASE

Date for defence: 17/12/2020 at (time of day): 14:00-16:00 Place: Zoom (link of the meeting: https://aarhusuniversity.zoom.us/j/63928654976)

Press release (Danish)

Virtuelt ph.d.-forsvar: Filomena Iannuzzi

THERAPEUTIC TARGETING OF AMYLOID PRECURSOR PROTEIN TYROSINE 682 RESIDUE IN ALZHEIMER'S DISEASE.et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Filomena Iannuzzi, torsdag det d. 17/12/2020

Alzheimers sygdom (AD) er en af de hyppigste årsager til demens på verdensplan. Sygdommen påvirker i alvorlig grad livslængde og livskvalitet for de ramte patienter og deres pårørende. Der findes endnu ikke, en effektiv behandling. Amyloid Precursor Protein (APP) spiller en central rolle i AD, da kløvning af APP fører til uønsket produktion af Aβ peptider, hvilket sammen med proteinet Tau, er en jørnesten i udviklingen af AD. Kløvning af APP afhænger af, hvor i cellen APP befinder sig. Fosforylering af en bestemt del af APP, APP Tyr682, regulerer hvor i cellen APP findes og kontrollerer derigennem, hvordan APP kløves. I dette projekt undersøgte vi hypotesen, at øget fosforylering af APP Tyr682 fører en ophobning af toksiske Aβ peptider (Aβ42), som det ses i hjernen hos AD patienter. Studiet tyder på, at fosforylering af APP Tyr682 i sammenhæng med aktivering af Fyn Tyrosin Kinase (TK) har betydning for udviklingen af AD. Der er øget FynTK aktivitet i nerveceller og blodprøver fra AD patienter. FynTk inhibitorer kan mindske fosforylering af APP Tyr682 og reducere mængden af Aβ42, som frigives fra nerveceller fra AD patienter. Resultaterne tyder på, at Fyn TK inhibition og APP sidekæden Tyr682 kunne være potentielle mål for tidlig diagnose og personlig behandling af AD patienter.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 17/12/2020 kl. 14:00 på Zoom. Titlen på projektet er "THERAPEUTIC TARGETING OF AMYLOID PRECURSOR PROTEIN TYROSINE 682 RESIDUE IN ALZHEIMER'S DISEASE". Yderligere oplysninger: Ph.d.-studerende Filomena Iannuzzi, e-mail: filomena.iannuzzi@biomed.au.dk, tlf. +393318289619.

Bedømmelsesudvalg:
Lektor - Andersen Olav- formand for bedømmelsesudvalg og moderator ved forsvaret. Associate Professor, PhD, Department of Biomedicine, Faculty of Health, Aarhus University, Aarhus, Denmark.

Lektor Russo Tommaso. Professor, PhD, MD, Department of Biochemistry and Medical Biotechnology, School of Medicine, University Federico II of Naples, Naples, Italy.

Lektor Finsen Bente, Professor, PhD, BRIDGE, Brain Research - Inter-Disciplinary Guided Excellence, University of Southern Denmark, Odense, Denmark

Press release (English)

Online PhD defence: Filomena Iannuzzi

THERAPEUTIC TARGETING OF AMYLOID PRECURSOR PROTEIN TYROSINE 682 RESIDUE IN ALZHEIMER'S DISEASE: The project was carried out by Filomena Iannuzzi, who is defending her dissertation on Thrusday 17/12/2020.

Alzheimer's disease (AD) is a devastating neurodegenerative disorder that currently has no cure and no effective treatment. The amyloid precursor protein (APP) is one of most extensively studied molecules in AD, as its cleavage leads to dysregulated production of Aβ peptides, which together with tau protein are considered the two central players in AD. APP cleavage depends on its intracellular location. Phosphorylation of the APP Tyr682 residue, located on the 682YENPTY687 C-terminal motif, regulates APP compartmentalisation and controls APP cleavage. This PhD project proposes the excessive phosphorylation of the APP Tyr682 residue as responsible for Aβ42 production and accumulation and points on Fyn tyrosine kinase (TK) as crucial in mediating APP Tyr682 phosphorylation in neurons from AD patients. Indeed, hyperactivated Fyn and elevated APP Tyr682 phosphorylation levels are found in neurons, fibroblasts and blood samples from AD patients. Fyn TK inhibitors decrease APP Tyr682 phosphorylation and reduced Aβ42 release in media from neurons of AD patients.Taken together, the results of this PhD project suggest the APP Tyr682 residue as molecular target for either the development of diagnostic procedures in patients at early stages of the AD or to the design of a pharmacologic personalized therapy using Fyn TK inhibitors.
The defence is public and takes place on 17/12/2020 at 14:00-16:00 on Zoom.
The title of the project is THERAPEUTIC TARGETING OF AMYLOID PRECURSOR PROTEIN TYROSINE 682 RESIDUE IN ALZHEIMER'S DISEASE.
For more information, please contact PhD student: Filomena Iannuzzi,
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Assessment committee:

Associate professor, PhD, Olav Andersen- chairman of the committee and moderator of the defence. Department of Biomedicine, Faculty of Health, Aarhus University, Aarhus, Denmark.

Professor, PhD, MD, Tommaso Russo, Department of Biochemistry and Medical Biotechnology, School of Medicine, University Federico II of Naples, Naples, Italy.

Professor Bente Finsen, BRIDGE, Brain Research - Inter-Disciplinary Guided Excellence, University of Southern Denmark, Odense, Denmark.

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