

Press release

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Basic information

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Department of: Biomedicine

Main supervisor: Olav M. Andersen

Title of dissertation: SORL1 in Alzheimer's Disease: Dimerization, Endolysosomal Trafficking, and Therapeutic Potential

Date for defence: 16/06-2026 at (time of day): 09.00 Place: Samfundsmedicinsk auditorium (1262-101), Aarhus University, Bartholins Allé 2, 8000 Aarhus C

Press release (Danish)

SORL1 giver ny indsigt i mekanismer og behandling af Alzheimer's sygdom

Alzheimers sygdom er en af de mest almindelige årsager til demens, men mange af de cellulære forandringer, der driver sygdommen, er stadig ikke fuldt forstået. Dette ph.d.-projekt undersøger, hvordan hjernens celler håndterer intern transport og recycling af proteiner hvilket er en proces der spiller en vigtig rolle i Alzheimer's sygdom.

Projektet fokuserer på en Alzheimer's-relateret receptor kaldet SORL1, som hjælper med at styre, hvordan vigtige molekyler transporteres inde i cellerne. Forskningen viser, at SORL1 proteiner skal danne par inde i små cellulære rum for at fungere korrekt. Når denne proces forstyrres af Alzheimer's-relaterede genetiske varianter, påvirkes cellens transportsystem, hvilket fører til forandringer, der kan forårsage sygdommens udvikling.

Som en del af projektet blev der udviklet en mindre version af SORL1, kaldet en minireceptor. Denne minireceptor bevarer vigtige funktioner fra den fulde receptor og kan reducere dannelsen af skadelige amyloid-beta-peptider, som er tæt forbundet med udviklingen af Alzheimer's sygdom. Fordi minireceptoren er lille nok til at passe ind i virale leveringssystemer, kan den have potentiale for fremtidige strategier inden for genterapi mod Alzheimer's sygdom.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 16/06 kl. 09.00 i Samfundsmedicinsk auditorium (1262-101), Aarhus Universitet, Bartholins Allé 2, 8000 Aarhus C. Titlen på projektet er "SORL1 in Alzheimer's Disease: Dimerization, Endolysosomal Trafficking, and Therapeutic Potential". Yderligere oplysninger: Ph.d.-studerende Anne Mette Gissel Jensen, e-mail: amgj@biomed.au.dk, tlf. +45 23447098.

Bedømmelsesudvalg:

Chairman og moderator:

Associate Professor Heidi Kaastrup Müller, Ph.D.

Department of Clinical Medicine, Aarhus University, Aarhus, Denmark

Ekstern international opponent:

Professor Stefan Lichtenthaler, Ph.D

German Center for Neurodegenerative Diseases (DZNE), München, Germany

Ekstern national opponent:

Director of the Danish Dementia Biobank Anja Hviid Simonsen, Ph.D

Danish Dementia Research Centre Rigshospitalet, Copenhagen, Denmark

Press release (English)

SORL1 Offers New Clues to Alzheimer's Disease Mechanisms and Treatment

Alzheimer's disease is one of the most common causes of dementia, but many of the cellular changes that drive the disease are still not fully understood. This PhD project investigates how brain cells handle internal transport and recycling of proteins which is a process that plays an important role in Alzheimer's disease.

The project focuses on an Alzheimer's-related receptor called SORL1, which helps control how important molecules are moved inside cells. The research shows that SORL1 proteins need to pair up inside small cellular compartments to function properly. When this process is disturbed by Alzheimer's-linked genetic variants in SORL1, the cell's transport system is affected, leading to changes that might cause disease development.

As part of the project, a smaller version of SORL1, called a minireceptor, was developed. This minireceptor keeps important functions of the full receptor and can reduce the formation of harmful amyloid-beta peptides, which are closely associated with the development of Alzheimer's disease. Because the minireceptor is small enough to fit into viral delivery systems, it may have potential for future gene therapy strategies for Alzheimer's disease.

The project was carried out by Anne Mette Gissel Jensen, who is defending her dissertation on 16/06-2026.

The defence is public and takes place on 16/06-2026 at 09.00 in Samfundsmedicinsk auditorium (1262-101), Aarhus University, Bartholins Allé 2, 8000 Aarhus C. The title of the project is SORL1 in Alzheimer's Disease: Dimerization, Endolysosomal Trafficking, and Therapeutic Potential. For more information, please contact PhD student Anne Mette Gissel Jensen, email: amgj@biomed.au.dk, Phone +45 23447098.

Assessment committee:

Chairman and moderator of the defense:

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External international opponent:

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