Media release

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Basic information

Name: Le Thi My Le Email: lele@biomed.au.dk Phone: +45 25668668

Department of: Clinical Medicine

Main supervisor: Professor Jens Randel Nyengaard

Title of dissertation: Structural studies of membrane-related protein complexes in neuronal development

Date for defence: March 31, 2017 at (time of day): 14:00 Place: Lille Anatomisk Auditorium, Aarhus University, Building 1231, room 424, Wilhelm Meyers Alle' 3, Aarhus C.

Media release (Danish)

Strukturelle studier af membran-relaterede proteinkomplekser i neuronal udvikling

Et nyt ph.d.-projekt fra, Aarhus Universitet, Healt viser 2D projektion kort af membranrelaterede proteinkomplekser med brug af enkelt-partikel elektronmikroskopi. Projektet er gennemført af Le Thi My Le, der forsvarer sin afhandling den 31. marts 2017.

Proteiner, der sidder i eller tæt på en membran er afgørende for en celles funktion. Strukturelle data om membranrelaterede proteinkomplekser er imidlertid begrænset af tekniske udfordringer. Le Thi My Le har i sit ph.d.-projekt studeret strukturerne af to proteinkomplekser, der spiller en vigtig rolle i nervecellers udvikling . Hun har rekombinant udtrykt og oprenset fuldlængde former af PAR3, det dimere kompleks PAR6/aPKC og det trimere kompleks PAR3/PAR6/aPKC, og karakteriseret komplekserne med enkelt-partikel elektronmikroskopi. Det andet kompleks er et Wnt signaleringskompleks, som indeholder proteinerne LRP6, FZD8 og en Wnt ligand. Oprensningsprotokoller blev etableret med succes for fuldlængde Wnt receptor FZD8 og co-receptoren LRP6 med dannelse af trimer LRP6-Wnt3a-FZD8 komplekset, som efterfølgende blev påvist ved co-immunoudfældning. De første 2D projektions strukturer af det ternære LRP6/Wnt3a/FZD8 kompleks og fuldlængde LRP6 kompleks er demonstreret.

Forsvaret er offentligt og finder sted den 31. marts kl 14 i Lille Anatomisk Auditorium, Aarhus Universitet, Bygning 1231, lokale 424, Wilhelm Meyers Allé '3, Århus C. Titlen på projektet er "Strukturelle studier af membranrelaterede proteinkomplekser i neuronal udvikling". For mere information, kontakt venligst ph.d.-studerende Le Thi My Le, e-mail: lele@biomed.au.dk, Telefon +45 25668668.

Media release (English)

Structural studies of membrane-related protein complexes

A new PhD project form Health, Aarhus University, shows 2D projection maps of membrane-related protein complexes using single-particle electron microscopy. The project was carried out by Le Thi My Le, who is defending her dissertation on the 31st of March 2017.

Proteins that insert or attach to the membrane are critical for a cell's function. However, structural data on membrane-related protein complexes are limited due to technical challenges. Le Thi My Le has studied the structures of two protein complexes that function in neuronal development in her PhD project. She recombinantly expressed and purified full-length forms of PAR3, the dimeric complex PAR6/aPKC and the trimeric complex PAR3/PAR6/aPKC, and characterized the complexes by single-particle electron microscopy. The second complex is a Wnt signaling complex including the proteins LRP6, FZD8 and a Wnt ligand. Purification protocols were successfully established for the full-length

Wnt receptor FZD8 and the co-receptor LRP6, and formation of the trimeric LRP6-Wnt3a-FZD8 complex was initially shown by co-immunoprecipitation. The first 2D projection structures of the ternary LRP6/WNT3a/FZD8 complex and the full-length LRP6 alone are presented.

The defence is public and takes place on the 31st of March at 2 pm in "Lille Anatomisk Auditorium", Aarhus University, Building 1231, room 424, Wilhelm Meyers Alle' 3, Aarhus C. The title of the project is "Structural studies of membrane-related protein complexes in neuronal development". For more information, please contact PhD student Le Thi My Le, email: lele@biomed.au.dk, Phone +45 25668668.

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