

# DANDRITE Workshop: "α-Synuclein and Lewy body disease workshop"



**George Tofaris**

Professor

Nuffield Department  
of Clinical Neurosciences  
University of Oxford



**Liisa T. Myllykangas**

Associate Professor

Department of Pathology  
University of Helsinki

## "The intracellular trafficking and extracellular vesicle release of α-Synuclein"

We have developed a complementation assay to study the dynamic ubiquitination of endogenous α-synuclein in neurons. We found that ubiquitination of α-synuclein involves the formation of K63-linked ubiquitin chains and demonstrates autophagic adaptor NBR1 binds to ubiquitinated α-synuclein and mediates its entry into endosomes.

The data suggested that endosome-derived extracellular vesicle (EV)-associated α-synuclein could be a useful biomarker in PD individuals. We demonstrated that patients at high risk of developing Parkinson's had a two-fold increase in L1EV α-synuclein and the test could differentiate them from healthy participants.

## "Lessons from neuropathological population cohort studies on Lewy-related pathology"

We have assessed the occurrence of Lewy-related pathology in the general population in two unique neuropathological population cohorts from Finland: the Tampere Sudden Death Study (TSDS), and the Vantaa 85+ study using alpha-synuclein immunohistochemistry.

The TSDS dataset suggests that accumulation of Lewy-related pathology starts already in middle age, with 9% of subjects aged 50+ without a clinical Lewy Body Disease / Parkinson's disease diagnosis.

In the Vantaa 85+ study, we have provided evidence that two common types of Lewy-related pathology exist in late life, consistent with the body-first vs. brain-first hypothesis.

## About the workshop

The workshop is a part of a PhD-Defence taking place at 1.00 PM at AIAS.

PhD-student: Nanna Møller Jensen

Host: Poul Henning Jensen

## Time and place

**Thursday 16 May 2024**  
**10:00 – 11:30**  
**1162-013**