Multi-parametric and super-resolution imaging of amyloidogenic proteins

https://neurodegenerationresearch.eu/survey/multi-parametric-and-super-resolution-imaging-of-amyloidogenic-proteins/

Principal Investigators

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Institution

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Contact information of lead PI
Country

United Kingdom

Title of project or programme

Multi-parametric and super-resolution imaging of amyloidogenic proteins

Source of funding information

MRC

Total sum awarded (Euro)

€ 724,126

Start date of award

01/07/2013

Total duration of award in years

3.0

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords
Research Abstract

Amyloid proteins such as Abeta and tau are known to misfold and, eventually, to aggregate into insoluble deposits. Questions that remain unsolved include: What are the neurotoxic amyloid species? Can the misfolded state propagate from one cell to another and has this an impact on the neuropathology? Do extracellular chaperones impact on degradation or aggregation pathways of amyloid species? The applicant’s group specialises in the development and

application of advanced microscopy techniques for the functional study of protein self-assembly reactions in neurodegenerative disease. We will use these tools to address the following questions: – Abeta and tau aggregates are likely to be composed of ensembles of oligomers with different sizes and conformations and potentially differing neurotoxicity. We will use novel fluorescence-based sensors to: a) characterise the biophysical properties of these ensembles in live cells with a spatial resolution on the molecular scale; and b) correlate their biophysical properties with effects on neuropathology. – There is increasing evidence in the literature that intracellular Abeta plays an important role in disease. In addition, the propagation of tau pathology appears to be crucial in spreading the disease to non-affected brain areas. We aim to characterise the trafficking mechanisms responsible for amyloid proteins being taken up by cells and/or released in the extracellular space. – We will screen for different inhibitors of Abeta or tau mediated neuropathology. Firstly, we will investigate different inhibitors of amyloid proteins propagation. Secondly, we will test the potential of extracellular chaperones to interfere with amyloid protein degradation or aggregation.

Lay Summary
Further information available at:

Types:
Investments > €500k

Member States:
United Kingdom

Diseases:
Alzheimer's disease & other dementias

Years:
2016

Database Categories:
N/A

Database Tags:
N/A