Studies of molecular mechanisms in Alzheimer's disease using imaging mass spectrometry

https://www.neurodegenerationresearch.eu/survey/studies-of-molecular-mechanisms-in-alzheimers-disease-using-imaging-mass-spectrometry/

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Sweden

Title of project or programme

Studies of molecular mechanisms in Alzheimer's disease using imaging mass spectrometry

Source of funding information

Swedish Research Council

Total sum awarded (Euro)

€ 652,883

Start date of award

01/01/2016

Total duration of award in years

4

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords
Research Abstract
Despite considerable research efforts, no effective drugs able to cure or even slow down the progress of Alzheimer's disease (AD) are yet in sight. An important part of the problem is that AD is an exceedingly complex disease with numerous biomolecular processes occurring in

parallel at many different locations in the brain. The purpose of this project is to mobilize novel and advanced molecular imaging technologies and to use these to study critical and yet unresolved issues regarding protein aggregation in AD, including the role of lipids, ApoE and so called chaperones in the aggregation of amyloid-beta peptides (Abeta), eventually leading to the formation of senile plaques. New information on these issues will be obtained by simultaneous imaging of a large number of proteins and lipids in and around Abeta plaques in AD transgenic mouse brains and in human AD brain tissue. A new analytical approach will be used, combining several state-of-the-art molecular imaging methods, including fluorescence microscopy, imaging MALDI and a recently developed method based on time-of-flight secondary ion mass spectrometry (TOF-SIMS), capable of parallel imaging of multiple proteins and lipids in tissue sections at subcellular (down to submicron) resolutions. The results are expected to provide new knowledge that may significantly improve the understanding of the molecular processes responsible for the disease and thereby contribute to the development of effective drugs against AD.

Lay Summary
Further information available at:

Types:
Investments > €500k

Member States:
Sweden

Diseases:
Alzheimer's disease & other dementias

Years:
2016

Database Categories:
N/A

Database Tags:
N/A