Diagnostic tools for neurodegenerative disease biomarkers based on robust optically signaling capture phases

https://www.neurodegenerationresearch.eu/survey/diagnostic-tools-for-neurodegenerative-disease-biomarkers-based-on-robust-optically-signaling-capture-phases/

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Title of project or programme

Diagnostic tools for neurodegenerative disease biomarkers based on robust optically signaling capture phases

Source of funding information

Swedish Research Council

Total sum awarded (Euro)

€ 522,307

Start date of award

01-01-2015

Total duration of award in years

4

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords
Research Abstract
Neurodegenerative diseases such Alzheimers (AD) and age-related white matter disease, (ARWMD) are associated with a lack of reliable routine methods for an early and differential

diagnosis. This is linked to the nature and behaviour of the established biomarkers in terms of their hydrophobicity, aggregation tendency, which together with their low abundence hampers the use of immunobased analytical methods. In this project we will develop robust peptide, protein or lipid binders in the form of Molecularly Imprinted Polymers (MIPs) or *plastic antibodies* which will serve as receptors in novel mass spectrometry or fluorescent assays compatible with nonphysiological conditions. Sequence specific MIPs for the AD biomarker ß-amyloid and its isoforms and proteotypic peptides the Tau protein as well as MIPs targeting a recently demonstrated blood based lipid biomarker panel for AD will be developed while incorporating fluorogenic monomers for optical reporting of bound analyte. The MIPs will subsequently be used for capture in array format followed by MS or fluorescence based readout of target binding. In contrast to antibodies MIPs are compatible with denaturing conditions and may thus allow for highly efficient and specific biomarker extraction generating information in terms of the absolute CSF or plasma target concentrations.

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