

Molecular imaging in neuropathology

<https://www.neurodegenerationresearch.eu/survey/molecular-imaging-in-neuropathology/>

Principal Investigators

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Country

Sweden

Title of project or programme

Molecular imaging in neuropathology

Source of funding information

Swedish Foundation for Strategic Research

Total sum awarded (Euro)

€ 3,373,232

Start date of award

01-07-2014

Total duration of award in years

5.0

The project/programme is most relevant to:

Alzheimer's disease & other dementias|Parkinson's disease & PD-related disorders

Keywords

Research Abstract

Medical whole body imaging has revolutionized medicine, and given access to “hidden” spaces, such as the CNS. Another revolution is the new micro/nanoscope super-resolution technology of within-cell localization and techniques for atomic structures of membrane proteins. Our approach is the concerted activity in 5 different groups with imaging at the “Ångström to meter” levels for medical diagnosis and treatment. The primary targets are G-protein-coupled receptors (GPCRs) now preferably called 7-transmembrane (7TM) proteins since not all signal thru G-proteins and particularly GPR37 target in Parkinson’s disease and the additional target A?-

peptide(aggregates in Alzheimers disease): • Atomic structures of 7TMs thru collaboration with an adjunct US/Chinese laboratory. • Direct analysis of molecular interactions in the living cell using fluorescence correlation spectroscopy (FCS). • Functional dimerization and pathologic aggregation of 7TMs with FCS and cross correlation (FCCS). • Neuropathologic lesions and localization in CNS thru positron emission tomography (PET) imaging. • Optogenetic probes to trigger functional repair in stroke and spinal cord trauma. By definition a living system is dynamic, and our approach is technology allowing studies of molecular movements and direct interactions.

Lay Summary

Further information available at:

Types:

Investments > €500k

Member States:

Sweden

Diseases:

Alzheimer's disease & other dementias, Parkinson's disease & PD-related disorders

Years:

2016

Database Categories:

N/A

Database Tags:

N/A