

CrossSeeds: Mechanisms of pathogenic protein cross-seeding in neurodegenerative disorders

<https://www.neurodegenerationresearch.eu/survey/crossseeds-mechanisms-of-pathogenic-protein-cross-seeding-in-neurodegenerative-disorders/>

Principal Investigators

H. Demuth, S.Robner, S.Hunot, S von Horsten, J. Bjaalie

Institution

Multiple

Contact information of lead PI

Country

Germany|France|Norway

Title of project or programme

CrossSeeds: Mechanisms of pathogenic protein cross-seeding in neurodegenerative disorders

Source of funding information

JPND-Cross Disease

Total sum awarded (Euro)

€ 1,692,885

Start date of award

01/01/2015

Total duration of award in years

3.0

The project/programme is most relevant to:

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

Keywords

Research Abstract

As the acronym "CrossSeeds" implies, this project is based on the hypothesis that a number of brain disorders including Alzheimer's disease (AD), Parkinson's disease (PD) and Huntington's

disease (HD) share common pathogenic mechanisms leading to neurodegeneration. A traditional view on these devastating disorders focuses on individual, disease-specific enzymes and/or aggregating proteins contributing to aspects of neuropathology.

This consortium combines experimental approaches from fundamental, pre-clinical and clinical neuroscience with computational approaches to identify cross-disease pathways leading to pathogenic protein aggregation.

All three diseases have at least one feature in common: aggregation of pathogenic proteins associated with neurodegeneration. For example, Aβ peptides modified by glutamyl cyclase (QC) to form pyroglutamate (pGlu) act as seed for protein aggregation and provoke neurodegeneration in AD. As shown in preliminary experiments the AD-specific peptide pGlu-Aβ is also present in Lewy bodies of substantia nigra dopaminergic neurons of PD subjects and induces cross-seeding of α-synuclein. Our research expects to substantiate the hypothesis that post-translational modifications such as QC-catalysed pGlu-formation induce or enhance the amyloidogenic properties of Aβ, α-synuclein and huntingtin

Lay Summary

Further information available at:

Types:

Investments > €500k, JPND Projects

Member States:

France, Germany, JPND, Norway

Diseases:

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

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