Identification and modulation of pathogenic Amyloid beta-peptide species

https://neurodegenerationresearch.eu/survey/identification-and-modulation-of-pathogenic-amyloid-beta-peptide-species/

Principal Investigators
Institution
Contact information of lead PI
Country

European Commission

Title of project or programme

Identification and modulation of pathogenic Amyloid beta-peptide species

Source of funding information

European Commission FP7-Seventh Framework Programme

Total sum awarded (Euro)

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01/03/2013

Total duration of award in years

5.0

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords

Research Abstract

The frequency of Alzheimer’s disease (AD) will dramatically increase in the ageing western society during the next decades. Currently, about 18 million people suffer worldwide from AD. Since no cure is available, this devastating disorder represents one of the most challenging socio-economical problems of our future. As onset and progression of AD is triggered by the amyloid cascade, I will put particular attention on amyloid ß-peptide (Aß). The reason for this approach is, that even though 20 years ago the Aß generating processing pathway was identified (Haass et al., Nature 1992a & b), the identity of the Aß species, which initiate the deadly cascade is still unknown. I will first tackle this challenge by investigating if a novel and so far completely overlooked proteolytic processing pathway is involved in the generation of Aß species capable to initiate spreading of pathology and neurotoxicity. I will then search for

modulating proteins, which could affect generation of pathological Aß species. This includes a genome-wide screen for modifiers of gamma-secretase, one of the proteases involved in Aß generation as well as a targeted search for RNA binding proteins capable to posttranscriptionally regulate beta- and alpha-secretase. In a disease-crossing approach, RNA binding proteins, which were recently found not only to be deposited in Frontotemporal Lobar Degeneration and Amyotrophic Lateral Sclerosis but also in many AD cases, will be investigated for their potential to modulate Aß aggregation and AD pathology. Modifiers and novel antibodies specifically recognizing neurotoxic Aß assemblies will be validated for their potential not only to prevent amyloid plaque formation, but also spreading of pathology as well as neurotoxicity. In vivo validations include studies in innovative zebrafish models, which allow life imaging of neuronal cell death, as well as the establishment of microPET amyloid imaging for longitudinal studies in individual animals.

Lay Summary
Further information available at:

Types:
Investments > €500k

Member States:
European Commission

Diseases:
Alzheimer's disease & other dementias

Years:
2016

Database Categories:
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