Human stem cell models of Alzheimer’s disease.

https://www.neurodegenerationresearch.eu/survey/human-stem-cell-models-of-alzheimers-disease/

Name of Fellow

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Institution
Funder

Wellcome Trust

Contact information of fellow
Country

United Kingdom

Title of project/programme

Human stem cell models of Alzheimer's disease.

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5.0

The project/programme is most relevant to:

Alzheimer's disease & other dementias

Keywords

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Research Abstract

We propose to use stem cell models of Alzheimer’s disease to ask and answer biological questions about the disease that have not been previously approachable: the study of AD

initiation and pathogenesis in human forebrain neuronal networks, in real time. This programme depends on our fundamental research in developmental and stem cell biology and neuroscience, and associated technologies, such as genome engineering and imaging. That research underpins our ability to generate in vitro, glutamater gic cortical neural networks, which are the basis for functional studies of AD biology. We have used that system to study the development of Alzheimer’s disease pathologies in Down syndrome, including greatly increased Abeta peptide production, the formation of extracellular Abeta aggregates, changes in Tau phosphorylation and cellular localisation, release of extracellular Tau and cell death. Based on that work, we now propose to generate models of familial and sporadic Alzheimer’s disease, and use these models for functional experiments that address specific questions in AD: – How does AD progress and spread through the human nervous system? – How does AD affect neuronal function at the synapse and network level? – Can those changes be reversed? – How do AD-associated genetic variants contribute to disease initiation and progression in sporadic, late onset AD?

Types:
Fellowships

Member States:
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