Molecular characterisation of mitochondrial disease, using Drosophila melanogaster as model system

https://neurodegenerationresearch.eu/survey/molecular-characterisation-of-mitochondrial-disease-using-drosophila-melanogaster-as-model-system/

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Sweden

Title of project or programme

Molecular characterisation of mitochondrial disease, using Drosophila melanogaster as model system

Source of funding information

Ragnar Söderberg Foundation

Total sum awarded (Euro)

€ 870,511

Start date of award

01-01-2014

Total duration of award in years

5

The project/programme is most relevant to:

Parkinson's disease & PD-related disorders

Keywords
Research Abstract

Alpha-synuclein is known to contribute to the pathogenesis of Parkinson´s disease (PD) through the formation of toxic aggregates, oligomers, that lead to axonal and synaptic pathology and cell

death. Degradation of these toxic intermediates is a promising method to reduce neuronal loss. In addition, there is evidence from autopsy studies that increased cellular levels of alfa-synuclein will cause down-regulation of factors involved in the regulation of dopamine neuron survival and function, most notably the transcription factor Nurr1, which regulates key genes for dopaminergic neurotransmission as well as the expression of the GDNF receptor, Ret. This study will be performed in the rat AAV-alfa-synuclein model, developed and established in the host laboratory, which replicates most of the pathophysiological features of PD. The project is based on two working hypotheses: (i) that impaired expression of the Ret receptor, induced by increased cellular levels of alfa-synuclein, will make the affected DA neurons non-responsive to GDNF and thus more vulnerable to the cellular stress induced by alfa-synuclein, and (ii) That the ability of DA neurons to resist to alfa-synuclein toxicity depends on the efficiency of the lysosome/autophagy pathway, and that pharmacological or genetic-based stimulation of its activity may provide a powerful approach to counteract alfa-synuclein induced damage.

Lay Summary
Further information available at:

Types:
Investments > €500k

Member States:
Sweden

Diseases:
Parkinson's disease & PD-related disorders

Years:
2016

Database Categories:
N/A

Database Tags:
N/A