Mitochondrial DNA Quality Control and Neurodegeneration

https://neurodegenerationresearch.eu/survey/mitochondrial-dna-quality-control-and-neurodegeneration/

Principal Investigators

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Contact information of lead PI
Country

USA

Title of project or programme

Mitochondrial DNA Quality Control and Neurodegeneration

Source of funding information

NIH (NINDS)

Total sum awarded (Euro)

€ 1,127,449.54

Start date of award

30/09/2013

Total duration of award in years

1

The project/programme is most relevant to:

Parkinson's disease & PD-related disorders

Keywords

Mitochondrial DNA, Quality Control, Nerve Degeneration, mitochondrial DNA mutation, PINK1 gene

Research Abstract
DESCRIPTION (provided by applicant): Neurodegenerative disorders affect more than 50% of the population over the age of 80, and no treatment can halt the progression of the disease. The

strongest risk factor for most, if not all, neurodegenerative disorders are aging. Accumulation of mitochondrial DNA (mtDNA) mutations is seen during human aging and leads to cellular dysfunction and death. Thus strategies that reduce the mtDNA load and improve mitochondrial DNA quality are likely to delay aging and reduce the age-related pathologies of neurodegenerative diseases. We have generated a unique tool in living Drosophila melanogaster that contains engineered mtDNA mutations. We aim to use these flies to carry out genome-wide genetic screens to identify those genes, when mutated, lead to suppression or enhancement of the mitochondrial quality control.

Lay Summary

PUBLIC HEALTH RELEVANCE: The central focus of this proposal explores how to fill a knowledge gap – to identify molecular mechanisms of mitochondrial DNA quality control and age-dependent neurodegeneration. The identification of these mechanisms will allow us to develop effective drug targets for delaying aging and age-dependent cellular dysfunction in neurons. This will improve our understanding of Parkinson's disease, and may provide important insight into aging and other neurodegenerative disorders including Alzheimer's disease.

Further information available at:

Types:
Investments > €500k

Member States:
United States of America

Diseases:
Parkinson's disease & PD-related disorders

Years:
2016

Database Categories:
N/A

Database Tags:
N/A