

Studies on alpha-synuclein degradation and its relevance to Lewy body disease.

<https://neurodegenerationresearch.eu/survey/studies-on-alpha-synuclein-degradation-and-its-relevance-to-lewy-body-disease/>

Name of Fellow

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Institution

Funder

Wellcome Trust

Contact information of fellow

Country

United Kingdom

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Studies on alpha-synuclein degradation and its relevance to Lewy body disease.

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The project/programme is most relevant to:

Parkinson's disease & PD-related disorders

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Research Abstract

Parkinson's disease (PD), is a common neurodegenerative disorder without pre-symptomatic

diagnosis or cure. Although it is established that an accumulation of alpha-synuclein in neurons contributes to PD pathogenesis, the factors influencing the content of this key protein in cells remain poorly understood. I have recently discovered that the ubiquitin-ligase Nedd4 robustly ubiquitinates alpha-synuclein and promotes its degradation by the endosomal-lysosomal pathway. I hypothesize that (a) impaired degradation of alpha-synuclein by this pathway contributes to the pathogenesis of PD and (b) this pathway can be targeted for neuroprotection. I have the following specific aims: 1. Study in cell models whether Nedd4 regulates the membrane-bound fraction of alpha-synuclein and whether this process involves further post-translational modifications. 2. Investigate using primary neurons whether Nedd4-mediated alpha-synuclein is a target for neuroprotection. 3. Understand how Nedd4 is regulated in normal and disease states. 4. Study the anatomical distribution, level of expression and post-translational modification of Nedd4 and other endosomal proteins in PD and control brain tissue.

Types:

Fellowships

Member States:

United Kingdom

Diseases:

Parkinson's disease & PD-related disorders

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