

Alpha-synuclein is a key player in the pathogenic process of Parkinsons disease

<https://neurodegenerationresearch.eu/survey/alpha-synuclein-is-a-key-player-in-the-pathogenic-process-of-parkinsons-disease/>

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Contact information of lead PI Country

Sweden

Title of project or programme

Alpha-synuclein is a key player in the pathogenic process of Parkinsons disease

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4

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Research Abstract

Alpha-synuclein deposition is a core element of the neuropathology in Parkinsons disease. In this project, we will explore the mechanisms that are operational in the development of the parkinsonian pathology as it relates to handling of alpha-synuclein in the diseased neurons. We will establish a new animal model in which the oxidative damage in dopaminergic neurons will cause accelerated neurodegeneration. In this model, we will explore how alpha-synuclein is modified to generate the pathogenic forms including formation of oligomeric species, serine and tyrosine phosphorylation and methionine oxidation, which will be identified using advanced liquid chromatography and mass spectroscopy techniques. Furthermore, we will utilize a wide

spread cortical expression model that we have recently developed to explore how alpha-synuclein may be transferred from neurons to other cells types and if the centrally expressed protein would be detected in blood or peripheral organs. In addition to wet biomarker analysis, we will implement ultra high field magnetic resonance spectroscopic analysis of brain metabolites for longitudinal assessment of neuronal dysfunction in brains transduced to overexpress human alpha-synuclein.

Further information available at:

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Investments < €500k

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Sweden

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