

# Molecular mechanisms of Parkinson pathology spread and potential therapeutic interventions

<https://neurodegenerationresearch.eu/survey/molecular-mechanisms-of-parkinson-pathology-spread-and-potential-therapeutic-interventions/>

## Principal Investigators

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## Contact information of lead PI Country

Sweden

## Title of project or programme

Molecular mechanisms of Parkinson pathology spread and potential therapeutic interventions

## Source of funding information

Swedish Research Council

## Total sum awarded (Euro)

€ 652,884

## Start date of award

01-01-2015

## Total duration of award in years

4

## The project/programme is most relevant to:

Parkinson's disease & PD-related disorders

## Keywords

### Research Abstract

Dopaminergic neuronal death and alpha-synuclein (a-syn) aggregate formation (Lewy pathology) are the neuropathological hallmarks in Parkinson's disease (PD). Recent our and other studies have shown that Lewy pathology can be spread from peripheral tissues (e.g.

intestine) to the brain, and from one brain region to another. The objective of this project is to explore molecular mechanisms of aggregated a-syn propagation in PD in order to seek for novel therapies to delay the onset and slow down the disease progression. Specifically, we will use multidisciplinary technologies, including live-cell imaging, in vivo two-photon imaging, cell and transgenic mouse models, Drosophila models, AAV viral delivery and stem cell differentiation, to study interaction between genetic susceptibility and environmental risk factors on a-syn aggregation; to determine molecular machinery that control a-syn aggregate transport, to investigate how trans-synaptic transfer of a-syn takes place, to determine the role of autophagy-lysosomal system and UPS, on a-syn propagation, to study their subsequent consequences on neuronal function, e.g. neuroinflammation and synaptic aberrations and at last, to examine effects of specific a-syn antibodies on a-syn transfer and aggregation. The fulfillment of the project will further our understanding on PD pathogenesis and will open new avenues for identifying novel drug targets for small molecules that can restore lost neuronal function in PD.

### **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