

# In-cell NMR monitoring of alpha-Synuclein aggregation in neuronal cells

<https://www.neurodegenerationresearch.eu/survey/in-cell-nmr-monitoring-of-alpha-synuclein-aggregation-in-neuronal-cells/>

## **Principal Investigators**

### **Institution**

### **Contact information of lead PI**

### **Country**

European Commission

## **Title of project or programme**

In-cell NMR monitoring of alpha-Synuclein aggregation in neuronal cells

## **Source of funding information**

European Commission Horizon 2020

## **Total sum awarded (Euro)**

€ 1,996,500

## **Start date of award**

01/11/2015

## **Total duration of award in years**

5.0

## **The project/programme is most relevant to:**

Neurodegenerative disease in general

## **Keywords**

### **Research Abstract**

Intracellular aggregation of the human amyloid protein alpha-synuclein is causally involved in Parkinson's disease, a debilitating neurodegenerative disorder. The goal of this project is to combine low-resolution, fluorescence-imaging methods with high-resolution in-cell NMR and EPR spectroscopy techniques to derive macroscopic and microscopic insights into alpha-synuclein aggregate structures directly in neuronal cells. To achieve this goal, we will employ different sets of cultured neurons and investigate intracellular alpha-synuclein aggregation under defined conditions of mitochondrial dysfunction and cellular oxidative stress, two of the most common denominators of the disease. Importantly, we will also establish a human stem cell model for studying alpha-synuclein aggregation with high-resolution in-cell NMR and EPR methods, by using induced pluripotent stem cell (iPSC) derived dopaminergic neurons from

Parkinson's disease patients and control individuals. Results from this study will provide novel insights into the native mechanisms of intracellular aggregate formation and ultimately enable novel pharmacological approaches for therapeutic intervention.

**Lay Summary**

**Further information available at:**

**Types:**

Investments > €500k

**Member States:**

European Commission

**Diseases:**

Neurodegenerative disease in general

**Years:**

2016

**Database Categories:**

N/A

**Database Tags:**

N/A