# The potential involvement of astrocytes in Parkinson’s: Investigation using human pluripotent stem cells

https://neurodegenerationresearch.eu/survey/the-potential-involvement-of-astrocytes-in-parkinsons-investigation-using-human-pluripotent-stem-cells/

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**Country**

United Kingdom

**Title of project or programme**

The potential involvement of astrocytes in Parkinson's: Investigation using human pluripotent stem cells

**Source of funding information**

Parkinson's UK

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01/10/2015

**Total duration of award in years**

3.8

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**Research Abstract**
Regionally and functionally diverse astrocytes types are present throughout the developing and adult central nervous system. These cells are the most abundant cell type in the brain and it is well established that they are essential regulators of neuronal survival and function. In order to address the roles of midbrain astrocytes on midbrain dopamine neuronal survival we will utilise human pluripotent stem cells. We will direct their differentiation to astrocytes representative of

the midbrain (see Fig 1 main proposal). In addition, we have a working protocol to generate midbrain dopaminergic neurons (See Fig 1 main proposal) from these stem cells. We will utilise these dopamine neurons to test the effect of midbrain astrocytes themselves and astrocyte conditioned media (ACM) on neuronal differentiation and survival, plus or minus a toxic insult to the neurons. In addition, we will give a toxic insult to astrocytes and test their ability to cause death to neurons that have not been insulted. Finally we will determine novel proteins produced by the midbrain astrocytes using Mass Spectrometry, we will compare astrocytes that have had a toxic insult with those which have not. This body of work will determine if astrocytes play a role in the protection of dopamine neurons and if insulted astrocytes have a role to play in the death of dopamine neurons.

**Further information available at:**

**Types:**
Investments < €500k

**Member States:**
United Kingdom

**Diseases:**
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**Years:**
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**Database Categories:**
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**Database Tags:**
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