

Adult stem cells as vehicles for delivery of neurotrophic factors to the degenerating brain

<https://neurodegenerationresearch.eu/survey/adult-stem-cells-as-vehicles-for-delivery-of-neurotrophic-factors-to-the-degenerating-brain/>

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Country

Ireland

Title of project or programme

Adult stem cells as vehicles for delivery of neurotrophic factors to the degenerating brain

Source of funding information

Irish Research Council

Total sum awarded (Euro)

€ 87,000

Start date of award

09/01/2014

Total duration of award in years

4

Keywords

Research Abstract

This project will address a vital need in the treatment of Parkinson's disease (PD) which is the lack of an effective neuroprotective therapy. When a patient presents with the initial symptoms of PD there is already degeneration of up to 60% of the affected brain cells and current therapies offer no protection against further cell loss. The most promising neuroprotective therapy that has been identified for PD is a protective protein called glial cell line-derived neurotrophic factor (GDNF). However the effectiveness of GDNF in human trials has been hindered by issues relating to its delivery. Based on the vast amount of evidence in favour of the neuroprotective efficacy of GDNF, it is clear that identification of an improved delivery system

for clinical application is worthy of pursuit.

This project aims to develop a novel GDNF delivery system for Parkinson's disease by genetically engineering adult bone marrow-derived stem cells to produce GDNF. These engineered cells will be transplanted into the Parkinsonian brain, and their ability to protect against the development of movement impairments and neuropathology will be assessed in models of the disease. If we can show that these stem cells can provide a long-term supply of GDNF to the brain, and prevent the development and progression of the disease, then this will highlight the potential of this approach as a novel therapy for Parkinson's disease.

Given that the incidence, and consequent personal, societal and economic costs, of neurodegenerative diseases, including Parkinson's disease, is set to escalate with the aging population, it is essential that novel disease-modifying, neuroprotective therapies are developed to treat these devastating conditions sooner rather than later.

Further information available at:

Types:

Investments < €500k

Member States:

Ireland

Diseases:

N/A

Years:

2016

Database Categories:

N/A

Database Tags:

N/A