

Are astrocytes required for optimal survival of ES cell-derived dopaminergic transplants?

<https://www.neurodegenerationresearch.eu/survey/are-astrocytes-required-for-optimal-survival-of-es-cell-derived-dopaminergic-transplants/>

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United Kingdom

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Are astrocytes required for optimal survival of ES cell-derived dopaminergic transplants?

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Parkinson's UK

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5

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Research Abstract

Parkinson's is caused by the death of dopamine nerve cells (neurones), in a region called the substantia nigra. Transplants of corresponding cells from a fetus into patients' brains has been shown to bring substantial benefits in some cases. However, due to the scarcity of such tissue, this treatment will never be widely available unless a renewable source of cells can be found. Embryonic stem (ES) cells could provide such a source, as they are unspecified cells, which can multiply in culture to produce large numbers of cells, and scientists are now able to 'direct' these cells to become dopamine neurones. However, when transplanted into animals, such neurones do not survive or function as well as their counterparts from the fetus. We propose

that support cells, called 'astrocytes', are required to ensure that the transplanted neurones survive. The astrocytes found in the developing substantia nigra are known to provide specific factors required for dopamine neurone survival, but such astrocytes are probably lacking in cell transplants produced from stem cells.

The experiments proposed in this application will test whether astrocytes are necessary for graft survival. We will examine how astrocytes and dopamine neurones interact and mature together in ES cell derived grafts compared to fetal grafts and whether ES cell derived grafts can be rescued by adding astrocytes from other sources. It is anticipated that this can bring stem cell derived grafts one step closer to clinical application.

Further information available at:

Types:

Investments < €500k

Member States:

United Kingdom

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N/A

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