



A Stem Cell Dream – Using iPS cells to treat disease

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# The Edinburgh Herald



## New hope for Parkinson's treatment

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By Cameron MacDonald

A Scottish company is ready to use induced pluripotent stem (iPS) cell technology to treat patients with Parkinson's disease.

Scotland-based Lifebank Therapeutics today announced it has filed an application to begin initial clinical studies with its stem cell therapy for Parkinson's disease.

If approved by the regulatory authorities, this will be the first ever clinical study of its kind in the world, and, if successful, opens the door to iPS-based stem cell therapies being available to patients in just five years.

Parkinson's disease is a progressive neurodegenerative disease that results in severe physical disability, and occasionally psychiatric problems, such as dementia and depression.

Patients don't have enough dopamine - a signalling chemical - in the brain because the dopamine releasing cells in the brain have become inactive. In the UK around 120,000 suffer from the disease and up to this moment scientists and clinicians have not found a cure for Parkinson's yet.

In a study, carried out in 2008, researchers at Lifebank Therapeutics have taken some skin cells from 10 Parkinson's patients. Using a special technique these skin cells have been reprogrammed and now have embryonic stem cell properties - the cells are called induced

pluripotent stem (iPS) cells and have the ability to make copies of themselves *and* can become any type of cell in the body. Researchers have used these iPS cells to develop dopamine releasing-like cells.

If the clinical trial is approved, Lifebank Therapeutics will transplant these dopamine releasing cells directly into the brain of the 10 patients involved in the first study. The study will assess the safety of the treatment, safe dosage and identify side effects.

John Know, Chief Scientific Officer of Lifebank Therapeutics, is confident that their clinical study will be given the go ahead. He said: 'Because iPS cells are derived from a patient's own skin, there are no ethical issues. Our clinical study will pave the way for more widespread applications of iPS cells in treatment of neurological disorders.'

But Emily Smith, Professor of Neurobiology at the University of Edinburgh, views Lifebank Therapeutics' plans with strong scepticism and cautions against premature use of stem cells on patients. 'There is still so much to be learnt about stem cells and iPS technology before safe and effective treatments can be developed. At the moment we cannot be sure the injected cells would not become cancerous. I am concerned about the wellbeing of the patients involved, and also worried that rushing to the clinic now may seriously damage prospects for future clinical trials'.