

Therapeutic products from human stem cells

Leading stem cell technology company ReNeuron has bought together expert academic and industrial partners in a groundbreaking project that could one day lead to viable therapeutic stem cell treatments for serious diseases.

Key benefits

- develop treatments for patients with diseases such as Parkinson's disease and stroke
- dramatically reduce the demand for and cost of long-term nursing care
- the creation of generic processes will make future cell-based medicines easier to develop and more affordable across the industry

The death or malfunction of cells within the major organs of the human body – whether through illness, the aging process or stress – causes many serious diseases including diabetes, Alzheimer's disease, Parkinson's disease and stroke. By replacing these dead or non-functioning cells with healthy, functioning cells of an equivalent type, cell therapy has the potential to cure these and a host of other serious diseases, and is already used in treatments for leukaemia and repairing severely broken bones.

Following successful tests of its stem cell therapy on human diseases in pre-clinical models and the development of the technology to produce large numbers of consistent stem cells, ReNeuron

Group PLC has enlisted experts from the fields of manufacturing processes and cell matrix scaffolds. Together, this consortium will build a resource and expertise for stem cell development as a first step towards producing cost effective, scalable stem cell therapeutic treatments for serious diseases.

Launched at the beginning of 2005, this three-year project has a total cost of £4.4 million. It has received £2.2 million in funding under the DTI's Collaborative Research & Development initiative – part of the government's Technology Programme.

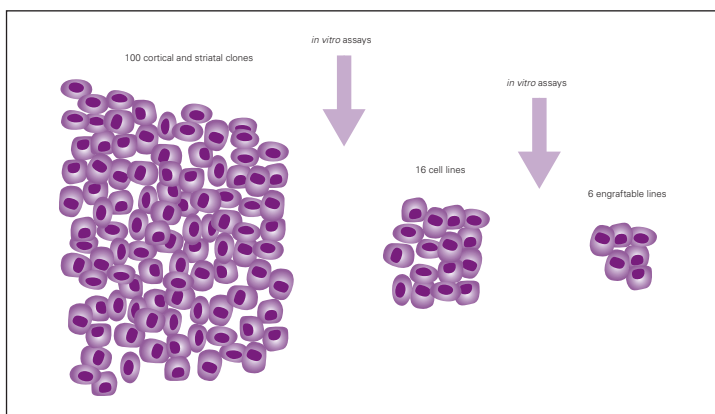
Surrey-based ReNeuron Group PLC is leading the project, in partnership with King's College London, the Institute of Psychiatry, Angel Biotechnology Ltd and Regen Tec Ltd.

Objectives

What stops cell therapy from truly revolutionising medicine is that until now it has not been possible to manufacture suitable cells in sufficient numbers to even begin widespread testing. In existing treatments, such as cell grafts onto cartilage or bone, the healthy mature cells

come directly from the body of the patient, or from donor relatives, in the case of bone marrow transplants. Unfortunately, under laboratory conditions, these mature cells cannot be grown beyond a small number of cell divisions and therefore there is no chance of large-scale clinical application as it's only possible to create enough new cells to treat a single patient.

Through its pioneering work in this field, ReNeuron has already



achieved the first objective – to develop the technology to successfully grow selected human stem cells into banks of cell lines capable of treating multiple patients. The commencement of this project now enables ReNeuron to work alongside its industrial partners Angel Biotechnology Ltd and Regen Tec Ltd, in order to achieve the second objective – to create the manufacturing processes that will take this technology from research and closer to reality.

As well as its principle aim – to create scalable, stem cell therapy treatments for stroke and Parkinson's disease, the programme also enables ReNeuron and its partners to explore other opportunities for their technology. Through continuing their development of cell lines that can be used by companies for drug testing and drug creation they are ensuring that they meet their objective to make the project commercially viable.

Solutions

By strategically selecting each of its academic and industrial partners for their individual expertise, ReNeuron is confident that the programme will turn its leading edge technology into a therapeutic treatment that is safe and that passes all of the tests required for a new drug entering the clinic. It will move ReNeuron closer to its goal of developing cures for stroke and Parkinson's disease, but it will also move the whole industry forward. Other companies will be able to license the technology and information to development treatments for other illnesses.

Results

Less than 12 months into the three-year programme, ReNeuron has proof of concept. They have demonstrated that their research works with pre-clinical models and they have had success in manufacturing cell banks. What's more, they expect to file for approval to commence their first clinical trials in stroke later this year.

"In terms of technology, this project will prove what can be done," explains ReNeuron's head of cell biology Dr Kenny Pollock. "If it is successful and becomes commercially viable, it would be a real benefit to patients and take our company and our partners' organisations to another level," he says.

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Collaborative Research & Development

Collaborative Research & Development is one of two business support solutions within the Technology Programme, the other being Knowledge Transfer Networks (KTNs). Its primary objective is to enable the industry and research communities to work together in strategically important areas of science, engineering and technology in order to develop successful new products, processes and services. It also enables the latest thinking and understanding to flow between universities, other research centres and business.

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