Grant for research that could lead to new therapies for Parkinson's Disease

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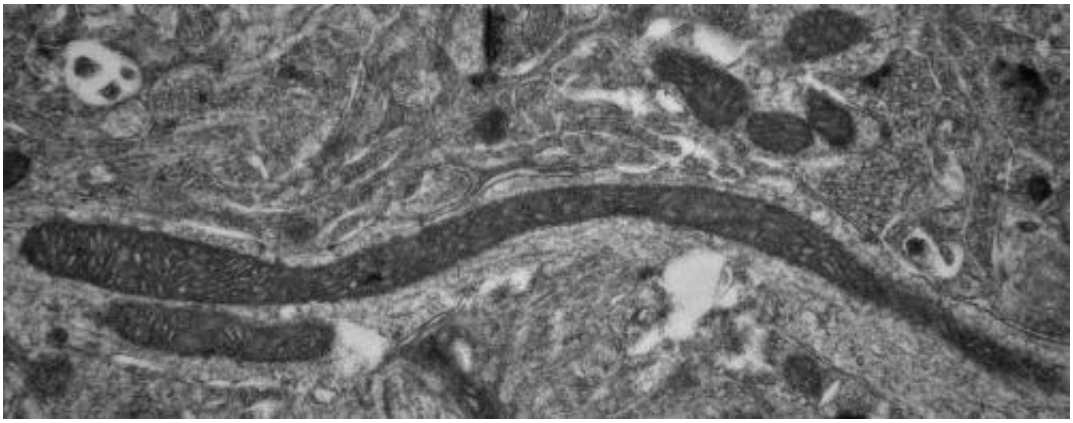

This image shows Parkinson's Disease mitochondria, the subject of the study awarded the Medical Research Council Grant of £500,000 (Sterling). Credit: Plymouth University Peninsula Schools of Medicine and Dentistry

A team of scientists led by researchers at Plymouth University Peninsula Schools of Medicine and Dentistry, has received a grant from the Medical Research Council (MRC) for work which could lead to new and effective therapies for those with Parkinson's Disease.

Parkinson's Disease is a progressive neurological condition that affects movement. At present there is no cure and little understanding of why some people get the condition. In the UK one in 500 people, around 127,000, have Parkinson's Disease.

The debilitating movement symptoms of the disease are primarily caused by the death of a type of brain cell that produces a chemical called dopamine. This brain chemical (also known as a neurotransmitter) helps nerve cells to send signals to other nerve cells. A reduction in dopamine from cell death results in a lack of communication between nerve cells, which in turn leads to difficulty in movement control. Understanding why these nerve cells die or do not work properly could lead to new therapies for Parkinson's Disease.

The grant of more than half a million pounds from the MRC will help the research team to focus on mitochondria, which are small structures within nerve cells that help keep the cells healthy and working properly – they are, in effect, the power generators of the cell. Mitochondria undergo frequent changes in shape, size, number and location either through mitochondrial fission (which leads to multiple, smaller mitochondria) or mitochondrial fusion (resulting in larger mitochondria). A balance of mitochondrial fission/fusion is critical to cell function and viability.

The MRC-backed research project will see scientists use drug and gene therapies to test whether alterations in mitochondrial fission or fusion would enhance the function and viability of dopamine-producing nerve cells in experimental models of Parkinson's Disease.

The research team is led by Dr. Kim Tieu from the Institute of Translational and Stratified Medicine, Plymouth University Peninsula Schools of Medicine and Dentistry. Dr. Tieu is a respected researcher in the field of Parkinson's Disease and came to Plymouth from the US last year. His laboratory has already done some work on studies to show that manipulation of the fission/fusion pathway has considerable potential for treating Parkinson's Disease.

He said: "We are so thrilled that the MRC has recognised the importance

of this work and has agreed to fund it. This support also speaks volumes about our outstanding team and research environment. I am very fortunate to have high calibre collaborators such as Drs. Robert Fern, Charles Affourtit (both also from the Institute of Translational and Stratified Medicine at Plymouth University) and Erwan Bezard (France) to join me in this research. If successful our work will provide insights into the impact of targeting mitochondrial fission/fusion on dopamine release and cell viability in Parkinson's disease and hence, a potential new therapeutic strategy for this brain disorder."

John Whipps, a retired scientist from Warwick University who now lives in Looe, was diagnosed with Parkinson's Disease in October 2007. He welcomes the news that Plymouth University Peninsula Schools of Medicine and Dentistry has received this funding.

He said: "When I was initially diagnosed with Parkinson's my first question was, 'What tablets do I take to cure it?' It came as a bit of a shock to be told that there was not only no cure, but no sure way to slow down the neurological degeneration which causes Parkinson's symptoms. The new project looks particularly exciting as it may identify a way of maintaining the functionality of the brain cells which are lost with Parkinson's and could potentially lead to a new treatment that slows disease progress and even restores the activity of damaged neurones in the brain - a great result if it can be achieved."

Provided by University of Plymouth