

## **New blood test can diagnose and monitor treatment of Parkinson's disease**

A simple test to diagnose Parkinson's disease (PD) before symptoms appear by measuring the levels of a protein in blood is being developed by researchers from the Howard Florey Institute, The University of Melbourne and The Mental Health Research Institute of Victoria.

While Florey researchers have also created a genetic test for PD (10% of PD cases are caused by genetic factors), this new test has a broader application by screening for many different types of PD and monitoring treatment, as well as measuring the effectiveness of drugs being developed to treat the disease.

Dr Qiao-Xin Li and colleagues from The University of Melbourne and The Mental Health Research Institute of Victoria, along with Prof Malcolm Horne from the Howard Florey Institute, found people with PD had low levels of the brain-secreted protein 'alpha-synuclein' in their blood, while people without PD had high levels of the protein.

Prof Horne said the test they developed measured alpha-synuclein levels in blood.

"Currently there is no specific PD diagnostic test so doctors rely on their observations to make a diagnosis, which means some patients may not be prescribed the most suitable medication and around 15% of those diagnosed may actually be suffering from something else," Prof Horne said.

"Further studies are required to establish whether this test can distinguish between people who are responsive to treatment and those who are not," he said.

The researchers are now conducting a large-scale study to determine the effectiveness of the test, to discover whether it is applicable for all types of PD, and to find out if it can measure the rate of progression and severity of the disease.

"If the results of our large-scale study are encouraging, this test could be available for clinical use within the next two years," Prof Horne said.

"We are now refining the test to make it quicker and cheaper so it can be offered to all those who have or are at risk of developing PD.

"While the clinical outcomes for this test will be significant, it also opens up new avenues of PD research and drug development.

"Further research using this test will also help us better understand the many different forms of PD and work towards ways to prevent or delay the disease.

"The test will also ensure drug trial participants actually have PD so research outcomes will be statistically more valid, which paves the way for faster and more effective drug development.

"When drugs that modify disease progression are available, this test may also help in showing whether candidate drugs are having an effect on the disease by keeping alpha-synuclein levels close to normal," Prof Horne said.

The Florey is currently seeking funding to further develop this test so it can be available for clinical use.

This research was recently published in *Experimental Neurology* and was a collaborative project involving Qiao-Xin Li, Su San Mok, Katrina Loughton, Catriona McLean, Roberto Cappai, Colin Masters, Janetta Culvenor and Malcolm Horne.

## **PARKINSON'S DISEASE FACTS & FIGURES**

- Parkinson's disease (PD) is the second most common neurodegenerative disorder affecting 1% of the Australian population over the age of 65.
- Parkinson's is second only to dementia as the most common chronic neurological condition.
- 80,000 Australians have Parkinson's and 4,000 are diagnosed each year.
- 20,000 Victorians have Parkinson's, and over 1,000 are diagnosed each year, or nineteen each week.
- The direct and indirect costs of Parkinson's to the state of Victoria are over one billion dollars per year. This will significantly increase in the next thirty years with the ageing of the population.
- There is a misconception that this is an "old person's" disease. 20% of people with the disease are under 50 when diagnosed.

## **HOWARD FLOREY INSTITUTE**

The Howard Florey Institute is Australia's leading brain research centre and is located in Melbourne. Its scientists undertake clinical and applied research that can be developed into treatments to combat brain disorders, and new medical practices. Their discoveries will improve the lives of those directly, and indirectly, affected by brain and mind disorders in Australia, and around the world. The Florey's research areas cover a variety of brain and mind disorders including Parkinson's disease, stroke, motor neuron disease, addiction, epilepsy, multiple sclerosis, Huntington's disease and dementia.

## **SPOKESPEOPLE**

### **Professor Malcolm Horne – spokesperson for research**

Professor Malcolm Horne is the Deputy Director (Research) of the Howard Florey Institute and leader of the Florey's Parkinson's disease research group. Professor Horne is also a neurologist at St Vincent's Hospital, Melbourne. Professor Horne's clinical interests are in movement disorders, especially Parkinson's disease. His research interests relate to factors underlying the control of movement and in particular the biological basis of underlying Parkinson's disease.

### **Mrs Anne Atkin – patient with Parkinson's disease**

Mrs Anne Atkin is 56 years old, married and has boys aged 19 and 21. She was a primary teacher for 29 years and retired not long after she was diagnosed with Parkinson's in 2005, as the duties became too fatiguing. Anne currently volunteers as the Parkinson's Victoria Librarian once a week and is an Ambassador for Parkinson's. She is very involved with the arts and its therapeutic application to Parkinson's. Anne's symptoms of Parkinson's started to develop when she was in her mid 40's. During this time she was misdiagnosed a number of times. She was told she had a "frozen shoulder", that she had "Fibromyalgia" and for six years received treatment under this diagnosis (cortisone injections, physiotherapy and hydrodilations). Anne's health continued to decline and she spent thousands of dollars on treatments that did not help. In 2005 Anne's symptoms became more advanced and she received the diagnosis of Parkinson's. She began Levodopa therapy and her frozen shoulder disappeared. As a person living with Parkinson's, Anne has had to change the way in which she lives and do things but she is still optimistic about the future.

### **Mr Glenn Mahoney - CEO of Parkinson's Victoria**

Mr Glenn Mahoney is the CEO of Parkinson's Victoria. He has over 20 year's management experience in the disability sector, the last eight years in the neurological sector. Previous positions have been General Manager Services with the MS Society of Victoria and with Vision Australia Foundation.