

New hope for early diagnosis and treatment of Parkinson's

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Flinders University researchers have discovered that a protein in the brain may play a role in the development of Parkinson's disease – a common degenerative neurological disorder which affects the control of body movements.

The protein, known as VAMP2, is critical in communicating messages between brain cells, however Dr Wei-Ping Gai (pictured) from the University's Human Physiology Department says that it has also been found to induce cell death, possibly by aggregating inside brain cells.

The exact mechanisms by which the protein causes cell death is now being investigated by Dr Gai as part of a \$15,000 research project funded through the FMC Foundation.

"VAMP2 is involved in [neurotransmission](#) but we recently discovered that it could be also involved in Parkinson's disease, we just don't know how it causes it or to what extent it's involved," Dr Gai, a research fellow and senior lecturer, said.

"In Parkinson's disease brain cells die and we think that dying process comes as a result of the protein aggregating inside these brain cells for some reason, leading to toxicity and, eventually, [cell death](#)," he said.

Using mass spectrometry, an analytical technique that determines the chemical structure of molecules, Dr Gai hopes to find out why the [protein aggregates](#) in brain cells, thereby paving the way for early

diagnosis and targeted treatments for the debilitating disorder.

"At the moment there's no cure for Parkinson's disease because we only know [brain cells](#) die, we don't know exactly how they die or why the proteins aggregate," Dr Gai said.

"So if we can find out what causes these proteins to group together we might be able to find a cure or use the protein as a biomarker so that the disease can be detected much earlier than it currently is.

"Parkinson's is a terrible disease and it's often not detected until a late stage when the patient is already suffering many adverse consequences of the disorder, including tremors, [muscle stiffness](#) and impaired mobility.

"It's the second most common neurodegenerative disorder in older populations and it's extremely prevalent in countries like Australia, which is why it must be a research priority."

Provided by Flinders University

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