Medical Xpress

Parkinson's: Newly discovered antibody could facilitate early diagnosis

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Conditions such as Parkinson's disease are a result of pathogenic changes to proteins. In the neurodegenerative condition of Parkinson's disease, which is currently incurable, the alpha-synuclein protein changes and becomes pathological. Until now, there have not been any antibodies that could help to demonstrate the change in alpha-synuclein associated with the disease. An international team of experts led by Gabor G. Kovacs from the Clinical Institute of Neurology at the MedUni Vienna has now discovered a new antibody that actually possesses this ability.

"It opens up new possibilities for the development of a diagnostic test for Parkinsonism," says Kovacs, highlighting the importance of this discovery. "This new antibody will enable us to find the pathological conformation in bodily fluids such as blood or CSF." A clinical study

involving around 200 patients is already underway, and the first definitive results are expected at the end of 2012. The tests being carried out in collaboration with the University Department of Neurology, led by Walter Pirker, are designed to determine the extent to which the new antibody can be used as an early diagnostic tool in order to understand the condition better and be able to treat it more effectively.

A step towards a blood test for Parkinson's

With Parkinsonism, the diseased form of alpha-synuclein, which has the same primary structure as the healthy form, undergoes an "abnormal fold". Says Kovacs: "Until now, however, it was not possible to distinguish between the two." The previous immunodiagnostic techniques only allowed the general presence of alpha-synuclein to be confirmed. The new, monoclonal antibody, however, which the researchers at the MedUni Vienna have developed in collaboration with the German biotech firm Roboscreen, is now able to detect a strategic part of the protein responsible for the structural changes. The results of the study have now been published in the highly respected journal *Acta Neuropathologica*.

Says Kovacs: "It is still not possible to say whether or not we will be able to diagnose Parkinson's from a blood test, but this discovery certainly represents a major step in that direction." Theoretically, it should be possible to diagnose Parkinson's disease five to eight years before it develops.

In Austria, there are between 15,000 and 16,000 people living with Parkinson's syndrome. Its frequency increases with age. As society becomes older, Parkinson's disease, a degenerative condition of the brain, will become an increasingly widespread problem.

More information: An antibody with high reactivity for disease-

associated alpha-synuclein reveals extensive brain pathology.“ G. G. Kovacs, et al. *Acta Neuropathol.* 2012 Jul; 124(1):37-50. DOI: 10.1007/s00401-012-0964-xISBN