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Unravelling the biology of parkinsonism

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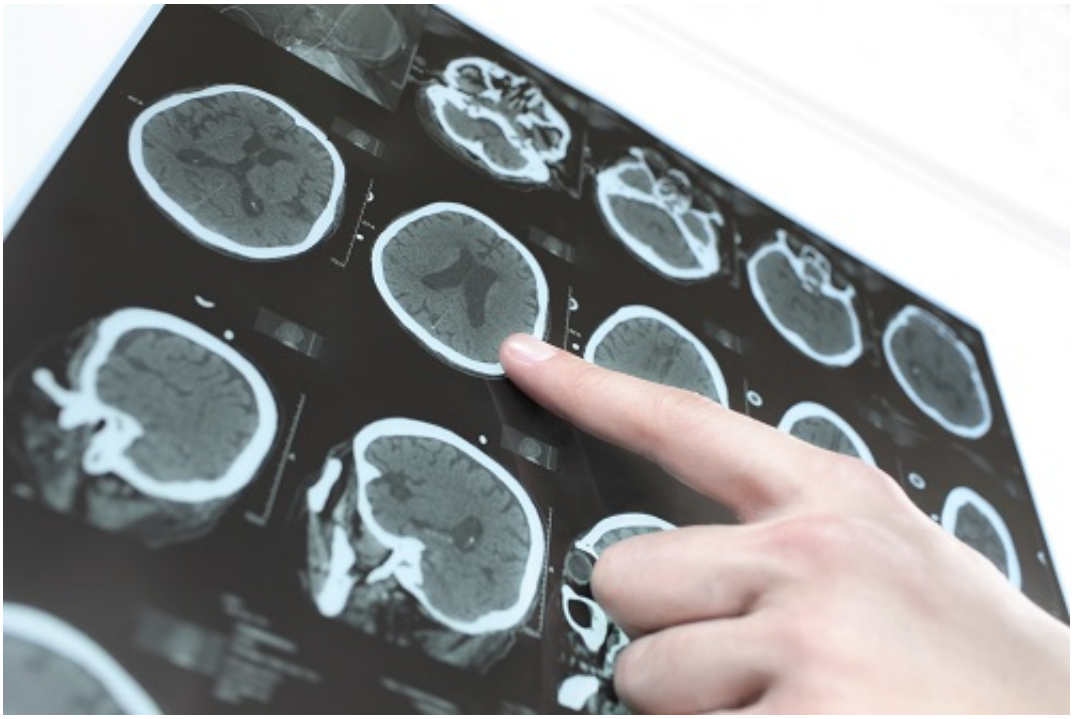

Credit: University of Bristol

Scientists have taken another step towards understanding the causes of parkinsonism by identifying what's happening at a cellular level to potentially help develop future treatments.

Parkinsonism is an umbrella term for a group of disorders that share symptoms with Parkinson's disease.

Researchers at the University of Bristol, and their Australia-based

collaborators at the University of Queensland, have shown that a genetic change, known as a mutation, impairs the ability to transport proteins correctly within cells.

A reduction in these proteins could help to explain why the body loses nerve cells in the part of the brain responsible for producing the chemical dopamine, which helps control and co-ordinate body movements and underpins parkinsonism.

The researchers were able to pinpoint the role of a mutation in the VPS26A gene, which is known to be linked to parkinsonism.

The results, published online this week in the *Journal of Cell Biology* [August 15th], reveal that the VPS26 mutation cannot bind the cargo adaptor, SNX27, which impairs the cell's ability to transport a sub-set of cargo proteins to their correct destinations. Some of these cargo proteins are already linked to Parkinson's disease, which affects one in 500 people in the UK.

Dr Kirsty McMillan, from the laboratory of Professor Peter Cullen in the School of Biochemistry at the University of Bristol, said: "By investigating mutations associated with parkinsonism, we have discovered another link between defects in protein trafficking and the pathology of disease. This research therefore provides additional insight into the molecular pathways involved in parkinsonism and provides new potential therapeutic targets."

More information: Kirsty J. McMillan et al. Atypical parkinsonism–associated retromer mutant alters endosomal sorting of specific cargo proteins, *The Journal of Cell Biology* (2016). DOI: 10.1083/jcb.201604057