

Alzheimer's disease research sheds new light on medication side effects

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A new study led by Western Sydney University has shed new light on the treatment of Alzheimer's disease, after researchers identified proteins causing neuronal allergy in neurons treated with Alzheimer therapeutic

antibodies.

Published in the *Alzheimer's & Dementia*, the study is the first to provide a molecular explanation of the incidence of amyloid-related imaging abnormalities (ARIA) side effects known to occur in 41% of Alzheimer's patients undergoing treatment.

The study, conducted in [stem cells](#) and primary neurons derived from healthy non-demented donors, identified proteins causing neuronal allergy.

Lead researcher, Associate Professor Mourad Tayebi, head of the Neuroimmunology Laboratory at Western Sydney University's School of Medicine, says the breakthrough study will guide researchers to develop and repurpose anti-allergy molecules in current Alzheimer's medication.

"Our study shows that antibodies targeting amyloid beta activates a large number of allergy-related proteins in neurons which could be, in theory, effectively 'turned off' by using newly developed and repurposed anti-allergy molecules," said Associate Professor Tayebi.

"The reason why antibody therapy causes ARIA in some patients has remained largely unknown until now. We have discovered a large proportion of the activated proteins were cell signaling proteins involved in type-1 hypersensitivity response, providing a comprehensive molecular explanation," he said.

Study co-author, Professor Sir John Hardy, Institute of Neurology, and Department of Molecular Neuroscience at University College London said the research has a real potential to develop ways to prevent and alleviate the side effects of current antibody therapy with follow up studies to come.

"Our work provides a better understanding on how anti-[amyloid beta](#) antibodies cause [side effects](#) in patients who already suffer from a devastating brain disorder already affecting their quality of life," said Professor Hardy.

Patients and their families are reminded to speak to a GP for [medical advice](#) specific to individual medical treatment plans, and to always follow medical instructions for any medication prescribed by a doctor or registered health care professional.

More information: Utpal Kumar Adhikari et al, Therapeutic anti-amyloid β antibodies cause neuronal disturbances, *Alzheimer's & Dementia* (2022). [DOI: 10.1002/alz.12833](#)

Provided by Western Sydney University

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