

Newly identified biomarker offers fresh hope for early Alzheimer's diagnosis

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A global team of researchers has discovered a new biomarker that could be used to detect Alzheimer's disease decades before symptoms emerge.

Alzheimer's [disease](#) affects more than 340,000 Australians and it is well documented that [early diagnosis](#) is the best hope for [effective treatment](#).

The study, published in *Nature Medicine*, examined the pattern of 'tau' protein build-up in the brains of 370 people with an inherited form of Alzheimer's disease.

Tau and another protein called beta-amyloid are known to be closely associated with the development of Alzheimer's disease, a form of brain degeneration.

The researchers, including Professor Ralph Martins from Edith Cowan University (ECU), found tau build-up occurs very early in Alzheimer's disease and follows a distinct pattern as the disease progresses.

Zeroing in

Professor Martins, from ECU's School of Medical and Health Sciences, said this ground-breaking discovery had the potential to pave the way for new treatments and early diagnosis for this deadly disease.

"Our research has shown that changes in tau occur at specific and measurable stages of Alzheimer's disease, so we can potentially pinpoint the onset of Alzheimer's very early on even before any brain degeneration has commenced," Professor Martins said.

"This is significant as it means we now have a new way of tracking the progression of Alzheimer's and potentially predicting if and when it may develop."

A promising future

Until recently, treatment of Alzheimer's disease has focused on targeting the build of the beta-amyloid protein, with limited success.

Professor Martins said his study's findings opened up new avenues of research and added weight to theories about the role tau plays in brain degeneration.

"Tau is recognised in all forms of dementia, not just Alzheimer's disease, so this research has wider implications which holds promise for treatment of all forms of dementia," he said.

"It also has the potential to be used to evaluate the efficacy of clinical drug trials, as we can start them sooner and measure their effects by assessing tau phosphorylation."

Professor Martins said the study would help scientists move forward towards the ultimate goal of finding a cure for Alzheimer's.

ECU was part of the collaborative global study led by Dr. Eric McDade and Dr. Randall J. Bateman at Washington University School of Medicine.

"A soluble phosphorylated tau signature links tau, amyloid and the evolution of stages of dominantly inherited Alzheimer's" disease was published in *Nature Medicine*.

More information: A soluble phosphorylated tau signature links tau, amyloid and the evolution of stages of dominantly inherited Alzheimer's disease, *Nature Medicine* (2020). [DOI: 10.1038/s41591-020-0781-z](https://doi.org/10.1038/s41591-020-0781-z)

Provided by Edith Cowan University

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