

Research identifies blood biomarker for predicting dementia before symptoms develop

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Emer McGrath, associate professor at the College of Medicine Nursing and Health Sciences at NUI Galway and consultant neurologist at Saolta University Health Care Group. Credit: Aengus McMahon

New research from NUI Galway and Boston University has identified a blood biomarker that could help identify people with the earliest signs of

dementia, even before the onset of symptoms.

The study was published today in the *Journal of Alzheimer's Disease*.

The researchers measured blood levels of P-tau181, a marker of neurodegeneration, in 52 cognitively [healthy adults](#), from the U.S.-based Framingham Heart Study, who later went on to have specialized brain PET scans. The [blood samples](#) were taken from people who had no cognitive symptoms and who had normal cognitive testing at the time of blood testing.

The analysis found that elevated levels of P-tau181 in the blood were associated with greater accumulation of β -amyloid, an abnormal protein in Alzheimer's disease, on specialized brain scans. These scans were completed on average seven years after the [blood](#) test.

Further analysis showed the biomarker P-tau181 outperformed two other biomarkers in predicting signs of β -amyloid on brain scans.

Emer McGrath, Associate Professor at the College of Medicine Nursing and Health Sciences at NUI Galway and Consultant Neurologist at Saolta University Health Care Group was lead author of the study.

"The results of this study are very promising—P-tau181 has the potential to help us identify individuals at high risk of dementia at a very early stage of the disease, before they develop memory difficulties or changes in behavior," Professor McGrath said.

The research team said the identification of a biomarker also points to the potential for a population screening program.

Professor McGrath said: "This study was carried out among people living in the community, reflecting those attending GP practices. A

[blood test](#) measuring P-tau181 levels could potentially be used as a population-level screening tool for predicting risk of dementia in individuals at mid to late-life, or even earlier.

"This research also has important potential implications in the context of clinical trials. Blood levels of P-tau181 could be used to identify suitable participants for further research, including in clinical trials of new therapies for dementia. We could use this [biomarker](#) to identify those at a high risk of developing dementia but still at a very early stage in the disease, when there is still an opportunity to prevent the disease from progressing."

More information: Emer R. McGrath et al, Blood Phosphorylated Tau 181 as a Biomarker for Amyloid Burden on Brain PET in Cognitively Healthy Adults, *Journal of Alzheimer's Disease* (2022). [DOI: 10.3233/JAD-215639](#)

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