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Researchers in Singapore identify blood proteins to predict brain and cardiovascular health issues

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Identified blood protein signatures are linked to cerebrovascular disease, cognitive decline, serious cardiovascular and cerebrovascular events, and mortality



Researchers from the Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine), have identified four proteins in the blood that could potentially help identify people at higher risk of worsening cerebrovascular disease, cognitive decline, serious heart and stroke-related events, and mortality.

Published in Alzheimer's & Dementia: The Journal of the Alzheimer's Association, the study analysed more than 1,400 proteins in blood samples spanning two Singapore-based research cohorts. The researchers identified novel blood protein signatures that were consistently associated with cerebrovascular disease and poorer health outcomes.

Cerebrovascular disease affects the brain's blood vessels and can cause small areas of tissue injury, microbleeds and white matter damage, contributing to stroke, cognitive decline and dementia. The study is the first to track its progression using large-scale protein profiling in a longitudinal Southeast Asian cohort, addressing a gap in research involving Asian populations.

Identified blood protein signatures were further tested in another independent Singaporean cohort, where these proteins were also found to be associated with mortality.

The study suggests that blood-based biomarkers could eventually complement brain imaging and clinical risk factors to identify people at greater risk of cerebrovascular disease, cognitive decline, and future cardiac and cerebrovascular outcomes. Further validation of these early findings is needed before they can be explored within clinical practice.

The team aims to investigate the biological roles of these proteins and their potential use in future treatments or multi-marker tests for earlier and more personalised risk assessment.

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