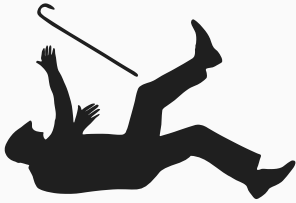### GDF15
(Growth Differentiation Factor 15)
Levels of GDF15, a stress-response protein associated with inflammation and tissue damage, show marked changes before the onset of dementia, underscoring its potential as an early biomarker for the disease.

GFAP
(Glial Fibrillary Acidic Protein)
Levels of GFAP begin to change at least 10 years before a dementia diagnosis, showing high specificity for dementia prediction, indicating its potential use in screening high-risk populations.

NEFL
(Neurofilament Light Chain)
Levels of NEFL, which indicate axonal damage and are linked to various neurological diseases, begin to change significantly ahead of a dementia diagnosis, highlighting their predictive potential.
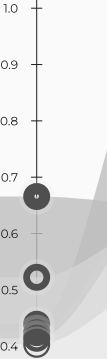
Alzheimer's
Disease

All-Cause
Dementia

Vascular
Dementia

GFAP

NEFL

GFAP

NEFL

GFAP

NEFL

GDF15

GDF15

GDF15

Plasma Protein
(ng/mL)

1.0
0.9
0.8
0.7
0.6
0.5
0.4

Time to diagnosis
(yrs)

3
5
7
9
11
13

Escaping Dementia:
Early Warnings from
# Protein Indicators

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Dementia stands as a formidable challenge in global health, affecting millions with its debilitating progression that robs individuals of their memories and cognitive abilities. It not only imposes a significant emotional burden on families but also incurs substantial healthcare costs worldwide.

Recently, researchers discovered that plasma proteomic patterns can predict dementia onset before symptoms emerge. This poster uses artistic visualization to show how important proteins like GFAP, NEFL, and GDFI5 change over time, particularly in the years leading up to the diagnosis of Alzheimer's disease (AD), All-Cause dementia (ACD), and Vascular dementias (VaD).

This poster aims to emphasize the importance of early detection through plasma protein monitoring, underscoring the potential of timely interventions to significantly change the course of dementia.

Protein HR for Disease

3.0 — 1.6
NEFL — 2.8 — 1.8 — GDF15
2.6 — 2.0 — GFAP
2.4 — 2.2
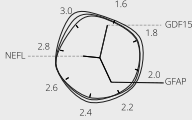
* HR (Hazard Ratio) measures the relative risk of developing a dementia based on the presence or level of specific proteins. An HR above 1 suggests a higher risk, while an HR below 1 indicates a protective effect.

SOURCE:
GUO Y, YOU J, ZHANG Y, ect. Plasma proteomic profiles predict future dementia in healthy adults[J/OL]. Nature Aging, 2024, 4(2): 247-260.