Neuroscience Current Issue

Alzheimer's & Dementia®
THE JOURNAL OF THE ALZHEIMER'S ASSOCIATION

A novel sensitive assay for detection of a biomarker of pericyte injury in cerebrospinal fluid

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Introduction: Blood-brain barrier (BBB) breakdown and loss of brain capillary pericytes contributes to cognitive impairment. Pericytes express platelet-derived growth factor receptor-β PDGFRβ) that regulates brain angiogenesis and blood vessel stability. Elevated soluble PDGFRβ (sPDGFRβ) levels in cerebrospinal fluid (CSF) indicate pericyte injury and BBB breakdown, which is an early biomarker of human cognitive dysfunction.

Results: We developed standard operating procedures for a highly sensitive and reproducible sPDGFRβ immunoassay with a dynamic range from 100 to 26,000 pg/mL, and confirmed elevated CSF sPDGFRβ levels in individuals with cognitive dysfunction.