Quanterix®

PUBLICATION BRIEF

p217+ tau Assay

NEUROLOGY

Advancing the Detection of Alzheimer's Disease Pathology with p-Tau 217

Alzheimer's disease (AD) has a global impact, underscoring the urgency of early and precise diagnosis for effective management. Recent strides in biomarker research hold promise for detecting and monitoring AD at earlier stages. Traditionally, diagnosing AD requires invasive and costly methods like cerebrospinal fluid (CSF) analysis and positron emission tomography (PET). However, the advent of blood-based biomarkers offers the potential for a more accessible and scalable approach in detecting AD pathology. Among these, p-Tau 217, a specific isoform of tau protein phosphorylated at the threonine 217 residue, has emerged as an important biomarker associated with AD.

Central to AD pathology is tau protein's hyperphosphorylation, contributing to neuronal degeneration. Recent research highlights elevated p-Tau 217 levels in AD patients and its correlation with early AD stages and amyloid-PET positivity, emphasizing its potential as a valuable blood-based biomarker for research, drug development, diagnosis, and patient care.

The versatility of p-Tau 217 as a blood-based biomarker extends to crucial current and potential future applications:

1. *Clinical Trials and Drug Development:* By incorporating blood p-Tau 217 measurements, one can evaluate treatment effectiveness and more efficiently identify suitable trial participants.
2. *Early Detection:* Swift identification of AD risk is essential for timely interventions. Measuring blood p-Tau 217 levels could potentially pinpoint individuals at risk during initial symptoms, enabling early therapeutic strategies.
3. *Differential Diagnosis:* Distinguishing AD from other dementias is complex. p-Tau 217 levels could potentially offer an avenue to differentiate AD from other forms, improving diagnostic accuracy in the future.

The p217+ tau research-use only (RUO) assay utilizes Janssen's proprietary antibodies, that detect tau species containing phosphorylation at residues 217 and 212 (p217+ tau) for enhanced precision and reliability on Quanterix's Simoa® platform. Simoa®'s ultrasensitive digital technology addresses the challenge of detecting p217+ tau in minute concentrations in blood. This technology allows for reliable quantification of p-Tau 217 and is available globally through Quanterix's Accelerator service laboratory. The p217+ tau assay supports researchers in transforming our understanding of AD pathology, opening new doors for groundbreaking advancements in AD research, and holds the potential to improve clinical trial design and outcomes.

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Simoa® Technology Enables Best-in-Class Research to Advance Scientific Breakthroughs

A sampling of recent peer-reviewed publications include:

Plasma phosphorylated tau-217 exhibits sex-specific prognostication of cognitive decline and brain atrophy in cognitively unimpaired adults
Alzheimers Dement. 2023 [published online ahead of print]
doi:10.1002/alz.13026

Plasma p-tau231 and p-tau217 inform on tau tangles aggregation in cognitively impaired individuals
Alzheimers Dement. 2023 [published online ahead of print]
doi:10.1002/alz.13393

Equivalence of plasma p-tau217 with cerebrospinal fluid in the diagnosis of Alzheimer's disease
Alzheimers Dement. 2023 [published online ahead of print]
doi:10.1002/alz.13454

Plasma and CSF biomarkers in a memory clinic: Head-to-head comparison of phosphorylated tau immunoassays
Alzheimers Dement. 2023
doi:10.1002/alz.12841

Association of Phosphorylated Tau Biomarkers With Amyloid Positron Emission Tomography vs Tau Positron Emission Tomography
JAMA Neurol. 2023
doi:10.1001/jamaneurol.2022.4485

Plasma p217+tau versus NAV4694 amyloid and MK6240 tau PET across the Alzheimer's continuum
Alzheimers Dement (Amst). 2022
doi:10.1002/dad2.12307

Diagnostic and prognostic performance to detect Alzheimer's disease and clinical progression of a novel assay for plasma p-tau217
Alzheimers Res Ther. 2022
doi:10.1186/s13195-022-01005-8

Development and validation of a high-sensitivity assay for measuring p217+tau in plasma
Alzheimers Dement (Amst). 2021
doi:10.1002/dad2.12204

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