Quest Advanced™ Neurology

ADmark® Phospho-Tau/ Total Tau/Aβ42 Analysis and Interpretation is now available from Quest Diagnostics

The combination of these 3 biomarkers enables a more accurate diagnosis of Alzheimer's disease

It's essential to have a set of biomarkers **that discriminates Alzheimer's disease (AD) from other forms of dementia.** The biomarker P-tau181 fulfills the proposed criteria for differentiation of AD and non-AD, and particularly of AD and frontotemporal dementia (FTD).[1]

In patients presenting with mild cognitive impairment (MCI), cerebrospinal fluid (CSF) assessment of beta amyloid (Aβ42), total tau (t-tau), and phosphorylated tau (p-tau) has shown strong clinical utility[2,3]:

Predicting progression from MCI to AD

SENSITIVITY	SPECIFICITY
95%	87%

Diagnosis of autopsy-confirmed AD

SENSITIVITY	SPECIFICITY
94%	90%

Differentiating AD from other types of dementia

SENSITIVITY	SPECIFICITY
88%	100%

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The Alzheimer's Association has published appropriate-use criteria for CSF biomarkers in the diagnosis of AD

Some of these appropriate indications include patients with[4]:

- Subjective cognitive decline who are considered to be at risk for AD
- Persistent, progressing, and unexplained MCI
- Symptoms that suggest possible AD
- Core criteria for probable AD with typical age of onset

The CSF biomarkers Aβ42, t-tau, and p-tau reflect the core components of AD pathology in line with the research framework provided by the National Institute on Aging–Alzheimer's Association (NIA-AA).[5]

CSF BIOMARKER	AD SIGNATURE
β-Amyloid Protein 1-42	↓ Low
Total Tau Protein	↑ High
Phosphorylated Tau Protein	↑ High

CSF tau/Aβ42 ratio is able to predict future dementia in cognitively normal adults[6]

Quest can help you provide a clinically relevant differential diagnosis of Alzheimer's disease

TEST CODE	TEST NAME	SPECIMEN VOLUME[a]/TUBE TYPE	SETUP/ANALYTIC TIME
92433	ADmark® Phospho-Tau, Total-Tau, Aβ42 CSF Analysis & Interpretation (Symptomatic)	2 mL CSF, polypropylene tube	7-14 days

[a] CSF must be collected in a polypropylene tube. Glass and polystyrene are not acceptable. CSF should be shipped on a cold pack or frozen on dry ice. Whole blood samples should remain room temperature.

Learn more →

References
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2. De Meyer G, Shapiro F, Vanderstichele H, et al. Diagnosis-independent Alzheimer disease biomarker signature in cognitively normal elderly people. *Arch Neurol*. 2010;67(8):949-956. doi:10.1001/archneurol.2010.179
3. Herskovits AZ, Growdon JH. Sharpen that needle. *Arch Neurol*. 2010 ;67(8):918-920. doi:10.1001/archneurol.2010.151
4. Shaw LM, Arias J, Blennow K, et al. Appropriate use criteria for lumbar puncture and cerebrospinal fluid testing in the diagnosis of Alzheimer's disease. *Alzheimers Dement*. 2018;14(11):1505-1521. doi:10.1016/j.jalz.2018.07.220
5. Jack CR Jr, Bennett DA, Blennow K, et al. NIA-AA research framework: toward a biological definition of Alzheimer's disease. *Alzheimers Dement*. 2018;14(4):535-562. doi:10.1016/j.jalz.2018.02.018
6. Fagan AM, Roe CM, Xiong C, et al. Cerebrospinal fluid tau/beta-amyloid (42) ratio as a prediction of cognitive decline in nondemented older adults. *Arch Neurol*. 2007; 64(3):343–349. doi:10.1001/archneur.64.3.noc60123

Test codes may vary by location. Please contact your local laboratory for more information.

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