



المختبر المرجعي الوطني
National Reference Laboratory
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Revolutionizing Alzheimer's Disease Diagnosis



UNDERSTANDING ALZHEIMER'S DISEASE

Alzheimer's Disease (AD) is a progressive neurodegenerative disorder characterized by amyloid-beta (A β) plaques and neurofibrillary tangles of hyperphosphorylated tau (p-tau), leading to progressive neuronal dysfunction and cell loss.

AD Neuropathologies can remain undetected for years due to the high cost and limited accessibility of traditional diagnostic tools.

These limitations delay diagnosis and intervention, adversely affecting patient outcomes.



"The disease might hide the person underneath, but there's still a person in there who needs your love and attention."

CHANGING THE DIAGNOSTIC LANDSCAPE THROUGH CUTTING-EDGE BIOMARKERS

Fluid biomarkers are emerging as powerful tools for diagnosing AD. The CSF AB 40/42 ratio test was the first FDA-approved diagnostic test and serves as evidence of amyloid pathology, supporting eligibility for amyloid-lowering therapy. Blood-based tests provide a further breakthrough in diagnostics by significantly increasing accessibility, while reducing costs and procedural distress compared to CSF or imaging methods.

Among blood-based biomarkers, p-Tau 217 stands out as a transformative diagnostic tool, offering:



01

Earlier and
more accurate
AD diagnosis



02

Better patient
care and
treatment
outcomes



03

Improved patient
stratification
for inclusion in
clinical trials

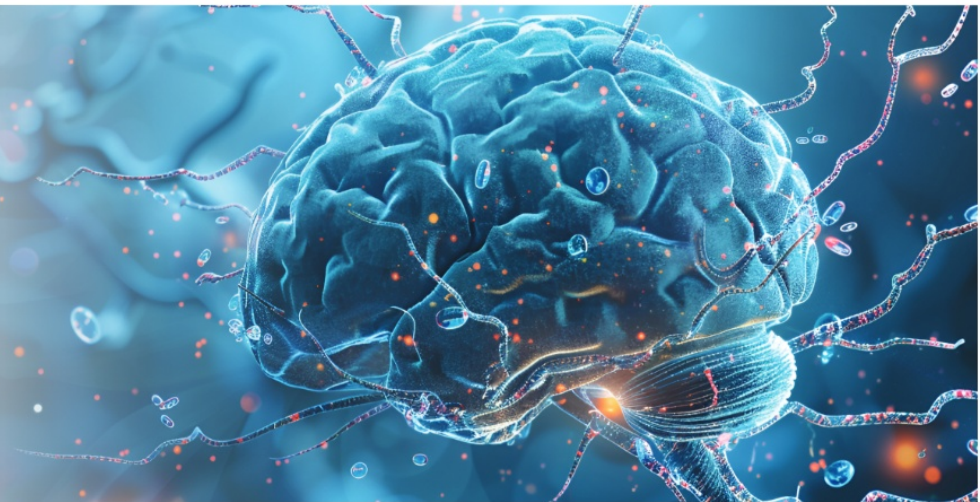


04

Greater specificity
and sensitivity than other
blood-based biomarkers

NRL's p-Tau 217 assay demonstrates high accuracy in predicting AD pathology, as confirmed by PET imaging.

"Dementia patients are people with a sane past and most times, they forget parts of them. It is our job to remember who they were."



COMPREHENSIVE TESTING SOLUTIONS

TEST CODE	TEST NAME	SPECIMEN TYPE	METHODOLOGY	TAT
#2925064	Amyloid-beta 42/40 Ratio, CSF	CSF	Lumipulse® assay (CLEIA)	7 days
#2925056	ATN Profile (NRL), plasma Tests included: Amyloid-beta 42 (Aβ42), Plasma Phosphorylated Tau 217 (p-Tau 217), Plasma Neurofilament Light Chain (NfL), Plasma BD-Tau, Plasma, SIMOA"	K2-EDTA plasma	(High Sensitivity) Chemiluminescent Enzyme Immunoassay	Up to 16 Days
#2925010	Complete ATN Profile (Panel of 4) Tests included: Amyloid-beta 42 (Aβ42), Plasma Phosphorylated Tau 217 (p-Tau 217), Plasma Neurofilament Light Chain (NfL), Plasma BD-Tau, Plasma, SIMOA	K2-EDTA plasma	"Simoa® assay and Lumipulse® assay (CLEIA)"	Up to 16 Days
#2925019	Complete Alzheimer's Disease Evaluation, Spinal Fluid (Panel of 5) Tests included: Neurofilament Light Chain (NfL) Amyloid-beta 42/40 Ratio (Aβ42/40) Total Tau (t-Tau) Phosphorylated Tau 181 (p-Tau 181)	CSF	Lumipulse® assay (CLEIA)	Up to 16 Days
#2925016	Complete Alzheimer's Disease Evaluation, Spinal Fluid (Panel of 5, with reflex to Neurogranin) Tests included: Neurofilament Light Chain (NfL) Amyloid-beta 42/40 Ratio (Aβ42/40) Total Tau (t-Tau) Phosphorylated Tau 181 (p-Tau 181) Neurogranin (Reflex)	CSF	Lumipulse® assay (CLEIA)	Up to 16 Days
#2925035	Glial Fibrillary Acidic Protein, Plasma	K2-EDTA plasma	Lumipulse® assay (CLEIA)	Up to 7 days
#2925038	Neurofilament Light Chain, CSF, CLEIA	CSF	Lumipulse® assay (CLEIA)	7 days
#2925040	Total Tau, CSF, CLEIA	CSF	Lumipulse® assay (CLEIA)	7 days
#2925041	Phosphorylated Tau 181, CSF, CLEIA	CSF	Lumipulse® assay (CLEIA)	7 days
#2925029	Phosphorylated Tau 217, Plasma, CLEIA	K2-EDTA Plasma	Lumipulse® assay (CLEIA)	Up to 7 days
#2925042	Phosphorylated Tau 217/Amyloid-beta 42 Ratio, Plasma	K2-EDTA Plasma	Lumipulse® assay (CLEIA)	Up to 7 days

COMPREHENSIVE TESTING SOLUTIONS

TEST CODE	TEST NAME	SPECIMEN TYPE	METHODOLOGY	TAT
#2925034	Neurofilament Light Chain, Plasma	K2-EDTA plasma	Lumipulse® assay (CLEIA)	Up to 7 days
#2925011	p Tau 217, Plasma, SIMOA (Alzpath)	K2-EDTA plasma	Simoa® assay	Up to 16 Days
#1724305	APOE genotyping, Alzheimer disease	Peripheral Blood	QPCR	7 days
#17243134	Alzheimer NGS <i>*Genelist (41): A2M, ABCA7, ACE, ADAMTS13, ALOX5AP, APOE, APP, BIN1, CD2AP, CHCHD10, CHMP2B, CSF1R, C9orf72, CST3, DNMT1, FTL, FUS, GBA1, GCDH, GRN, HFE, HNRNPA2B1, HSD17B10, ITM2B, MAPT, mLYCD, MPO, NOS3, PLA2G2B, PRNP, PSEN1, PSEN2, SNCA, SNCB, SPG21, SQSTM1, TARDBP, TREM2, TYROBP, UBQLN2, VCP</i>	Peripheral Blood	Next Generation Sequencing	21 days
#505725	LCA- Beta Amyloid 42/40 Ratio	Plasma, frozen	Sysmex chemiluminescence enzyme immunoassay (CLEIA)	9 days



***"Kindness in words
creates confidence,"***

PATIENT REFERRAL PATHWAY WITH SUSPECTED COGNITIVE IMPAIRMENT DUE TO ALZHEIMER'S DISEASE

BRAIN HEALTH REFERRAL PATHWAY

HCPs involved

- **Primary Care doctor**
- **Internal Medicine doctor**
- **Geriatrician**
- **Psychiatrist**
- **Specialized Nurse or any other Advanced Physician Assistant**

Pathway

Initial presentation

Initial workup

Methodology and Biomarkers involved

First consultation due to concern for cognitive and/or behavioral symptoms:

- Loss of short-term memory
- Difficulties in concentration/attention
- Difficulties in recall of names/words
- Difficulties managing finances/paying bills
- Difficulties in orientation in time / spatial orientation
- Confusion with time or place
- Etc...

Blood screening tests to identify common reversible causes

- Complete blood count (Anemia, infection, hematologic malignancy) [NRL Test Code: 21001]
- Comprehensive metabolic panel [NRL Test Codes:16213 (Conventional units); 11023 (SI units)]
- Fasting glucose [NRL Test Code: 6110013 (Conv) 11062 (SI)]
- HbA1c[NRL Test Code: 1101030]
- Thyroid function tests [NRL Test Code: 16293 (Conv) 1103502 (SI)]
- Vitamin B12 and Folate [NRL Test Code: 16435]

Cognitive assessment (any of the below)

- MMSE - AD8 - MiniCog - MoCA - DAS
- MiniACE - RUDAS - 5WT - ADAS Cog - Etc.

If all investigations are normal

- p-Tau 217 in plasma [NRL Test Code: 2925029]
- p-Tau 217/AB42 ratio in plasma [NRL Test Code: 2925042]
- ATN Profile in plasma [NRL Test Code: 2925056]

- **Neurologist**
- **Dementia Specialist**

Specialist Evaluation

Amyloid pathology investigation tests

- p-Tau 217 in plasma [NRL Test Code: 2925029]
- p-Tau 217/AB42 ratio in plasma [NRL Test Code: 2925042]
- ATN Profile in plasma [NRL Test Code: 2925056]

AD pathology exclusion test

- p-Tau 181 in CSF [NRL Test Code: 2925041]

If AD-BBB are positive

- Amyloid-beta 42/40 Ratio, CSF [NRL Test Code: 2925064]
- Total Tau, CSF [NRL Test Code: 2925040]
- P Tau 181, CSF [NRL Test Code: 2925041]
- Neurofilament Light Chain, CSF [NRL Test Code: 2925038]
- MRI
- Amyloid PET

- **Neurologist**
- **Radiologist**
- **Genetic Counselor**

Treatment Decision

AAT eligibility

- APOE genotype [NRL id:1724305]
- MRI
- Amyloid PET

- **Neurologist**
- **Radiologist**

Treatment management and monitoring

AAT monitoring

- MRI
- Amyloid PET

HCP: Health Care Provider
AAT: Anti-Amyloid Treatment
AD-BBB: Alzheimer's Disease Blood Based Biomarkers

References:

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ADVANCING ALZHEIMER'S DISEASE DIAGNOSIS

With a commitment to clinical excellence, NRL provides state-of-the-art laboratory testing for neurodegenerative diseases. Our validated assays, developed using extensive research and testing, offer industry-leading accuracy for AD diagnosis.



Contact us today to learn more about how NRL's advanced testing solutions can benefit your clinical practice or research.



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