ROBOSCREEN
DIAGNOSTICS

Biomarker Profiling for Neurodegenerative Diseases

Assays, Antibodies & Proteins

Pre-analytical enrichment of ND biomarkers from plasma by immunoprecipitation

- From complexity to purity: Enrichment of total Tau, p50-Tau, brain-derived Tau, beta-Amyloid, α-Synuclein, and patho-oligomeric α-Synuclein from blood-based samples
- Combinable with a detection system of choice

Easy-to-handle and ultra-sensitive immunoassays

- Proven reliability by certification or relevant clinical studies
- Enabling categorization of different neurodegenerative diseases
- From IP to Illumination: Workflows for sensitive and specific quantification of BD-Tau and p217-Tau in plasma & serum samples

Unique proteins & antibodies

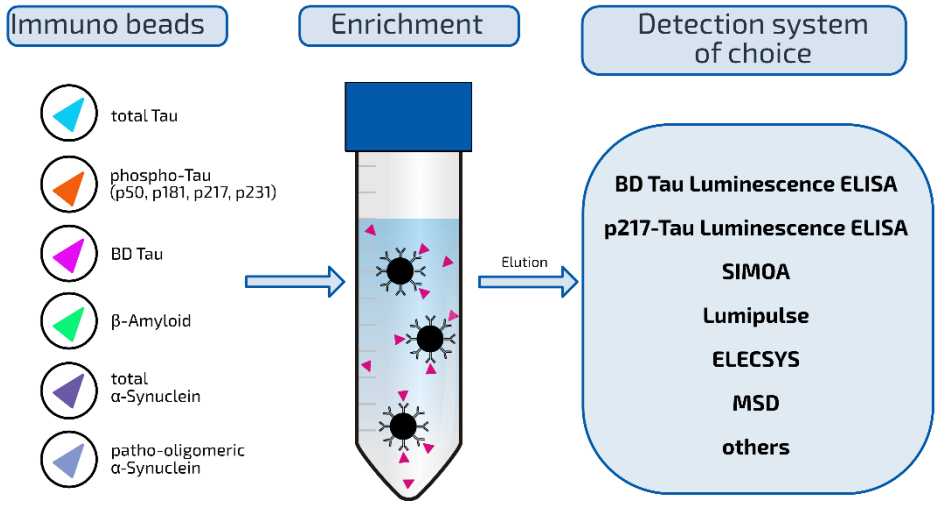
- Flexible and broad application: suitable for ELISA, Western blot, immunohistochemistry, and flow cytometry

Neuro IP Kit

Pre-analytical Enrichment of ND biomarkers from plasma

Simplify Plasma Biomarker Analysis in the research of Neurodegenerative Diseases

Detecting neurodegeneration (ND) biomarkers in plasma is challenging due to their low abundance and the complex structure of the sample matrix. The Neuro IP Kit, combined with mAb-coupled Immunobeads of choice, enriches key biomarkers of neurodegenerative diseases by immunoprecipitation, removes matrix interferences, and improves downstream analysis of choice, such as BD-Tau Luminescence ELISA, p217-Tau Luminescence ELISA, SIMOA, Lumipulse [1], ELECSYS [2], MSD [3], and others.
Immunobeads for the following biomarkers can be ordered: total Tau, p50-Tau, brain-derived Tau, β-Amyloid, total α-Synuclein, or patho-oligomeric α-Synuclein (other biomarkers are available on request).
Automation options are available - contact us to tailor the ideal solution for your workflow.



The BD- Tau & BD-p217-Tau workflows

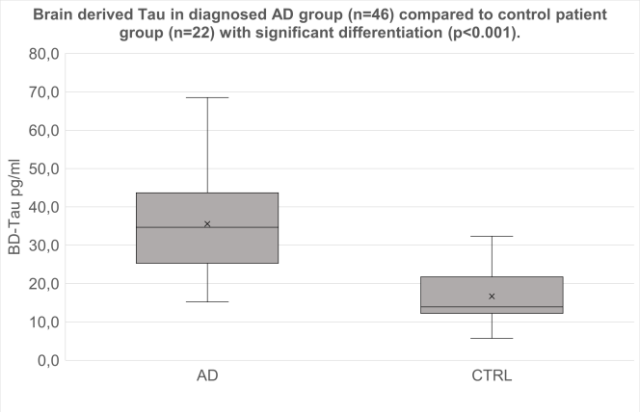
BD Tau Neuro IP Kit & BD Tau/ BD-p217-Tau Luminescence ELISA

Tau originating from the brain - easily measurable in blood-based samples

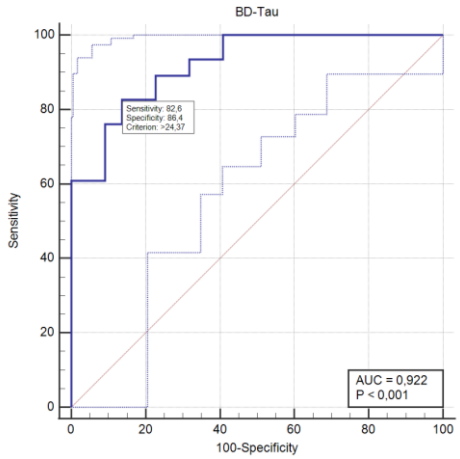
Neurodegenerative diseases such as Alzheimer's leave molecular traces, including in the form of tau protein. However, only a small portion of the tau protein measurable in the blood originates from the brain [4]. Therefore, total tau measurement from blood samples does not provide reliable signals.
The BD-Tau and BD-p217-Tau workflows make the difference.
Through targeted pre-analytical immunoprecipitation of brain-derived Tau isoforms and the subsequent detection of BD-Tau or p217-Tau, our workflows enable a sensitive and specific measurement of brain-derived tau species directly in plasma and serum samples, using standard laboratory equipment.

BD-Tau Workflow

Three panels of plasma samples, obtained from the University of Goettingen, MVZ Labor Limbach, and a commercial source, were used. All samples were characterized by CSF levels of A β 40/42, p181Tau, and hTau, as measured with the Lumipulse system. The subjects were classified according to the clinical cutoff point into the diagnostic groups Aß-positive (AD, n=46) and Aß-negative (CTRL, n=22). BD-Tau was extracted from a 200 µl sample using BD-specific Neuro-IP according to the protocol. The eluates were quantified using BD-Tau-specific Luminescence Immunoassay.



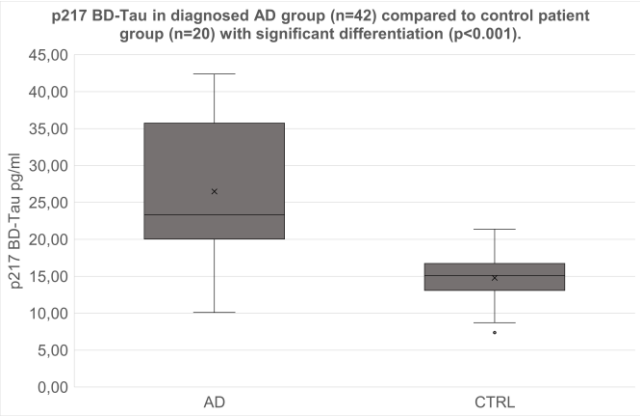
BD-specific Neuro-IP, followed by measurement of BD-Tau concentration using the BD-Tau LUM assay, showed significant differentiation between the AD group and the control group ($p < 0.001$).



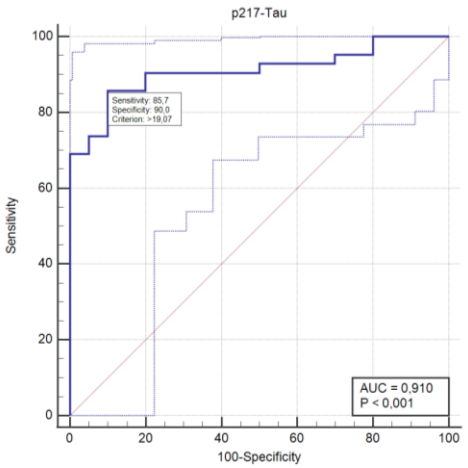
The ROC analysis for differentiation of the two diagnostic groups showed an AUC of 0.922 for the BD-Tau LUM assay ($p<0.001$).

BD-p217-Tau Workflow

Three panels of plasma samples, obtained from the University of Goettingen, and a commercial source, were used. All samples were characterized by CSF levels of A β 40/42, p181Tau, and hTau, as measured with the Lumipulse system. The subjects were classified according to the clinical cutoff point into the diagnostic groups Aß-positive (AD, n=42) and Aß-negative (CTRL, n=20). BD-Tau was extracted from a 200 µl plasma sample using BD-specific Neuro-IP according to the protocol. The eluates were quantified using a p217- and BD-Tau-specific, highly sensitive Luminescence Immunoassay with unique in-house antibody-coated technology.



BD-specific Neuro-IP with subsequent measurement of p217 BD-Tau concentration using the p217-Tau LUM assay showed significant differentiation between the Aß-positive group and Aß-negative group ($p<0.001$).



The ROC analysis for differentiation of the two diagnostic groups showed an AUC of 0.910 for the BD-Tau LUM assay ($p<0.001$).

Neuro-IP Kit

Order number [x] = [1]: 6x IP, [2]: 24x IP	Description
847-0108000108	Neuro IP Kit
847-060100010[x]	Immuno Beads total Tau
847-060100020[x]	Immuno Beads p50-Tau
847-060100030[x]	Immuno Beads brain derived Tau
847-060100040[x]	Immuno Beads Beta-Amyloid
847-060100050[x]	Immuno Beads human patho-oligomeric alpha-Synuclein
847-060100060[x]	Immuno Beads human total alpha-Synuclein

BD-Tau Workflows

Order number	Description	Reactions	Status
847-0108000110	BD Tau Neuro IP Kit	96	RUO
847-0108000109	BD Tau Luminescence ELISA	96	RUO
847-0108000111	Human p217 Tau Luminescence ELISA	96	RUO

Tau protein and beta-Amyloid

ELISAs for Tau protein

Order number	Description	Quantity
847-0108000101	hTAU total ELISA	12x8 reactions
847-0108000104	phosphoTAU ELISA	12x8 reactions
847-0108000102	non-pTAU ELISA	12x8 reactions
847-0104000112	p231 TAU ELISA	12x8 reactions
847-0104000116	TAU AGGREGATE ELISA	12x8 reactions

Antibodies for Tau protein & beta-Amyloid

Order number [x] = [1]: 100 µg, [3]: 1 mg	Clon	Reactivity
Phospho-Tau (Thr50)		
847-010200800[x]	15E3	p50 Tau (Thr50)
Phospho-Tau (Thr181)		
847-010200860[x]	14B6	p181 Tau (Thr181)
847-010200930[x]	7B8	p181 Tau (Thr181)
847-010200960[x]	7B9	p181 Tau (Thr181)
Phospho-Tau (Ser199/Ser202)		
847-010200320[x]	1F3	p199 Tau (Ser199)
847-010201160[x]	1C7	p199 Tau (Ser199)
847-010200460[x]	9C8	p199/p202 Tau (Ser199+Ser202)
847-010200450[x]	10F8	p202 Tau (Ser202)
847-010201170[x]	1D7	p202 Tau (Ser202)
Phospho-Tau (Thr217)		
847-010200880[x]	9G8	p217Tau (Thr217)
Phospho-Tau (Thr231/Ser235)		
847-010200350[x]	2B11	p231Tau (Thr231)
847-010200360[x]	5G7	p231Tau (Thr231)
847-010200370[x]	9D8	p231Tau (Thr231)
847-010200870[x]	8G5	p231Tau (Thr231)
847-010200440[x]	3G3	p231/235Tau (Thr231+Ser235)
847-010200910[x]	5C4	p231Tau (Thr231)

847-010200920[x]	6D2	p231Tau (Thr231)	
847-010200940[x]	7D11	p231Tau (Thr231)	
847-010200950[x]	2B5	p231Tau (Thr231)	
847-010201180[x]	1F7	p231Tau (Thr231)	
847-010201190[x]	1F5	p235Tau (Thr235)	
Brain derived Tau			
847-010200760[x]	2B8	Brain-derived Tau	
MTBR-Tau			NEW
847-010200990[x]	8D4	Tau MTBR (aa 316-323)	
847-010200980[x]	12C8	Tau MTBR (aa 313-323)	
847-010201060[x]	1E2	Tau MTBR (aa 317-323)	
847-010201070[x]	1F6	Tau MTBR (aa 313-323)	
847-010201080[x]	1B10	Tau MTBR (aa 317-323)	
847-010201090[x]	1F8	Tau MTBR (aa 317-323)	
847-010201100[x]	1D3	Tau MTBR (aa 317-323)	
847-010201110[x]	2D6	Tau MTBR (aa 313-323)	
847-010201120[x]	1F9	Tau MTBR (aa 317-323)	
Pan-Tau			
847-010200630[x]	7E5	Tau all isoforms	
847-010200510[x]	8F10	Tau all isoforms	
Tau Isoforms			
847-010200640[x]	2B6	Exon 3 human Tau	
847-010200660[x]	9E11	Exon 2 and 3 human Tau	
Beta-Amyloid			
847-010200650[x]	6D11	Beta-Amyloid N-terminus	
847-010200840[x]	2C7	Beta-Amyloid 1-12	
847-010200850[x]	3C4	Beta-Amyloid 1-12	
847-010200890[x]	22C2	Beta-Amyloid 42	
847-010201200[x]	10E2	Beta-Amyloid 42	NEW
847-010201210[x]	12E5	Beta-Amyloid 42	NEW
847-010200900[x]	RS-07	Beta-Amyloid N-terminus	

NfL NEW

Antibodies for NfL

Order number [x] = [1]: 100 µg, [3]: 1 mg	Clon	Reactivity
847-010201140[x]	2B4	human Neurofilament light (NfL), aa 376-400
847-010201290[x]	2B6	human Neurofilament light (NfL), aa 300-370
847-010201300[x]	1E7	human Neurofilament light (NfL), aa 350-380
847-010201310[x]	2B7	human Neurofilament light (NfL), aa 300-370
847-010201320[x]	2B8	human Neurofilament light (NfL), aa 300-370
847-010201330[x]	2C8	human Neurofilament light (NfL), aa 137-155
847-010201050[x]	1C6	human Neurofilament light (NfL), conformational epitope
847-010201150[x]	2E9	human Neurofilament light (NfL), aa 376-400

Prion protein

ELISAs for Prion Protein

Order number	Description	Quantity	
847-0104000104	BetaPrion® HUMAN ELISA	12x8 reactions	Update in protocol for plasma analysis
847-0104000103	BetaPrion® SCRAPIE ELISA	12x8 reactions	

Antibodies for Prion Protein

Order number [x] = [1]: 100 µg, [3]: 1 mg; * 50 µg	Clon	Reactivity
847-010200120[x]	5C4	Human, cattle, sheep, and deer prion protein
847-010200130[x]	1E2	Human and cattle prion protein
847-010200150[x]	6G3	Human, cattle, sheep, and deer prion protein
847-010200160[x]	5B9	Human and cattle prion protein
847-010200410[x]	6E2	Human and cattle prion protein
847-010200420[x]	7D5	Human and cattle prion protein
847-010200430[x]	5G11	Human and cattle prion protein
847-0102001704*	14D11	Human, sheep, and cattle prion protein, PrP^{res}
847-010200070[x]	4F7	Bovine and human prion protein, PrP^{res}
847-010200080[x]	1E5	Bovine and human prion protein, PrP^{res}
847-010200090[x]	3E7	Bovine, human, and ovine prion protein, PrP^{res}
847-010200100[x]	3B8	Bovine and ovine prion protein, PrP^{res}
847-010200110[x]	7B6	Bovine, human, sheep, and deer prion protein
847-010300010[x]	pAB R10 polyclonal	(sheep, human, cattle, deer, and mouse) prion

Prion proteins

Order number [x] = [1]: 100 µg, [2]: 500µg [3]: 1 mg	Description
847-010100010[x]	Recombinant bovine prion protein
847-010100030[x]	Recombinant human prion protein
847-010100060[x]	Recombinant sheep prion protein
847-010100070[x]	Recombinant deer prion protein

α-Synuclein

ELISAs for alpha-Synuclein

Order number	Description	Quantity	
847-0108000103	hSYN total ELISA	12x8 reactions	**Update in protocol for plasma analysis**
847-0104000108	HUMAN alpha-Synuclein PATHO ELISA	12x8 reactions	

Antibodies for alpha-Synuclein

Order number [x] = [1]: 100 µg, [3]: 1 mg	Clon	Reactivity
847-010200180[x]	10C3	Human α-synuclein
847-010200400[x]	5G4	β-sheet oligomers of human α-synuclein
847-010200470[x]	10D2	Human α-synuclein
847-010300090[x]	polyclonal	Human α-synuclein

Recombinant alpha-Synuclein

Order number [x] = [1]: 100 µg, [2]: 500µg [3]: 1 mg	Description
847-010100850[x]	Human α-synuclein, His-tagged
847-010100860[x]	Human α-synuclein

TDP43

ELISAs for TDP43

Order number	Description	Quantity
847-0108000107	hTDP43 total ELISA	12x8 reactions

Antibodies for TDP43

Order number [x] = [1]: 100 µg, [3]: 1 mg	Clon	Reactivity	
847-010200740[x]	2G10	TDP43 (200-220)	
847-010200770[x]	21B2	TDP43 (80-90)	
847-010200780[x]	19C9	TDP43 (80-90)	
847-010201000[x]	2C8	TDP43 (80-90)	NEW
847-010201010[x]	2C9	TDP43 (80-90)	NEW
847-010201020[x]	2C10	TDP43 (80-90)	NEW
847-010200790[x]	35G7	TDP43 (260-270)	
847-010201130[x]	1C7	TDP43 (260-270)	NEW
847-010200810[x]	1E6	Phospho-TDP43 (Ser409/410)	
847-010200820[x]	2F11	Phospho-TDP43 (Ser409/410)	
847-010200820[x]	11C10	Phospho-TDP43 (Ser409/410)	

References

[1] Morgado B, Klafki HW, Bauer C, Waniek K, Esselmann H, Wirths O, Hansen N, Lachmann I, Osterloh D, Schuchhardt J, Wiltfang J. Assessment of immunoprecipitation with subsequent immunoassays for the blood-based diagnosis of Alzheimer's disease. Eur Arch Psychiatry Clin Neurosci. 2024 Feb 6. doi: 10.1007/s00406-023-01751-2. Epub ahead of print. PMID: 38316685.
[2] Klafki HW, Vogelgsang J, Manuilova E, Bauer C, Jethwa A, Esselmann H, Jahn-Brodmann A, Osterloh D, Lachmann I, Breitling B, Rauter C, Hansen N, Bouter C, Palme S, Schuchhardt J, Wiltfang J. Diagnostic performance of automated plasma amyloid-β assays combined with pre-analytical immunoprecipitation. Alzheimers Res Ther. 2022 Sep 7;14(1):127. doi: 10.1186/s13195-022-01071-y. PMID: 36071505; PMCID: PMC9450259.
[3] Klafki, H.W.; Rieper, P.; Matzen, A.; Zampar, S.; Wirths, O.; Vogelgsang, J.; Osterloh, D.; Rohdenburg, L.; Oberstein, T.J.; Jahn, O.; et al. Development and Technical Validation of an Immunoassay for the Detection of APP669–711 (Aβ–3–40) in Biological Samples. Int. J. Mol. Sci. 2020, 21, 6564. https://doi.org/10.3390/ijms21186564
[4] Fernando Gonzalez-Ortiz, Michael Turton, Przemysław R Kac, Denis Smirnov, Enrico Premi, Roberta Ghidoni, Luisa Benussi, Valentina Cantoni, Claudia Saraceno, Jasmine Rivolta, Nicholas J Ashton, Barbara Borroni, Douglas Galasko, Peter Harrison, Henrik Zetterberg, Kaj Blennow, Thomas K Karikari, Brain-derived tau: a novel blood-based biomarker for Alzheimer's disease-type neurodegeneration, Brain, Volume 146, Issue 3, March 2023, Pages 1152–1165, https://doi.org/10.1093/brain/awac407

Issue Date: 02-10-2026

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