Anti-Brain-derived tau/BD-tau Antibody [PSH16-46] - BSA and Azide free (Capture)

HA723847

Product Type:	Recombinant Rabbit monoclonal IgG, primary antibodies
Species reactivity:	Human, Mouse, Rat
Applications:	ELISA(Cap)
Clone number:	PSH16-46

Description: Levels were significantly higher in patients with biomarker-confirmed AD than in patients with non-AD dementia and unaffected controls, including in a cohort with postmortem confirmed diagnoses and in a memory clinic cohort with high disease heterogeneity. In this multicenter study, we examined the association of blood BD-tau with longitudinal cognitive changes and AD-characteristic brain atrophy rates along preclinical, MCI, and dementia stages of AD using four independent cohorts. We further assessed whether BD-tau concentrations increase with the co-occurrence of A+ and N+ abnormalities across the AD disease continuum and whether such A/N classification can be achieved using blood-based biomarkers to identify individuals at risk for cognitive decline and atrophy in the short term. In addition, we assessed the impact of genetic risk, comorbidities, and demographic factors, including ethnic self-identification, on plasma BD-tau concentrations and their clinical performance.

Immunogen: Synthetic peptide within Human Tau aa 117-131 (P10636-8).

Positive control: Human Tau/Tau441, C-His (isoform 2N4R) Protein (HA210937).

Subcellular location: Cell membrane. Cytoplasm. Secreted.

Database links: SwissProt: P10636-8 Human

Recommended Dilutions:

ELISA(Cap) Use at an assay dependent concentration. Can be paired for Sandwich ELISA with Rabbit monoclonal [PSH10-42] to Brain-derived tau/BD-tau antibody (Detector) (HA723209) or Rabbit monoclonal [PSH16-47] to Brain-derived tau/BD-tau antibody (Detector) (HA723848) and Recombinant Human Tau/Tau441 protein (HA210937) as the standard. The reference range value is 39-10,000 pg/mL.

Storage Buffer: PBS (pH7.4).

Storage Instruction: Store at +4℃ after thawing. Aliquot store at -20℃. Avoid repeated freeze / thaw cycles.

Purity: Protein A affinity purified.

Images

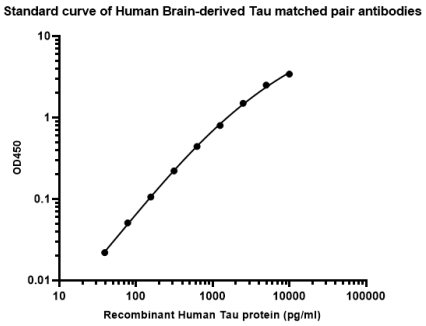

Fig1: Sandwich ELISA analysis of Human Brain-derived tau/BD-tau matched pair antibodies

Capture: HA723847, Brain-derived tau/BD-tau Rabbit mAb [PSH16-46]
Detector: HA723209, Brain-derived tau/BD-tau Rabbit mAb [PSH10-42]

Elisa assay was performed by coating wells of a 96-well plate with 100 µl per well of capture antibody (HA723847) diluted in carbonate/bicarbonate buffer, at a concentration of 5ug/ml overnight at 4℃. Wells of the plate were washed, blocked with 150 µl 0.05% tween-20 1% BSA blocking buffer, and incubated with serial diluted Recombinant Brain-derived tau/BD-tau protein (HA210937) starting from 10000 pg/ml to 0 pg/ml and detect antibody (HA723209, Biotin, 0.2 µg/ml) for 1 hour at 30℃ with shaking. Then the plate was washed and incubated with 100 µl per well of SA-HRP for 0.5 hour at 30℃ with shaking. Detection was performed using an Ultra TMB Substrate for 10 minutes at room temperature in the dark. The reaction was stopped with sulfuric acid and absorbances were read on a spectrophotometer at 450 nm.

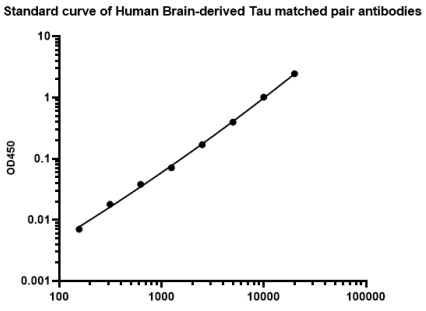

Fig2: Sandwich ELISA analysis of Human Brain-derived tau/BD-tau matched pair antibodies

Capture: HA723847, Brain-derived tau/BD-tau Rabbit mAb [PSH16-46]
Detector: HA723848, Brain-derived tau/BD-tau Rabbit mAb [PSH10-47]

Elisa assay was performed by coating wells of a 96-well plate with 100 µl per well of capture antibody (HA723847) diluted in carbonate/bicarbonate buffer, at a concentration of 5ug/ml overnight at 4℃. Wells of the plate were washed, blocked with 150 µl 0.05% tween-20 1% BSA blocking buffer, and incubated with serial diluted Recombinant Brain-derived tau/BD-tau protein (HA210937) starting from 10000 pg/ml to 0 pg/ml and detect antibody (HA723848, Biotin, 0.2 µg/ml) for 1 hour at 30℃ with shaking. Then the plate was washed and incubated with 100 µl per well of SA-HRP for 0.5 hour at 30℃ with shaking. Detection was performed using an Ultra TMB Substrate for 10 minutes at room temperature in the dark. The reaction was stopped with sulfuric acid and absorbances were read on a spectrophotometer at 450 nm.

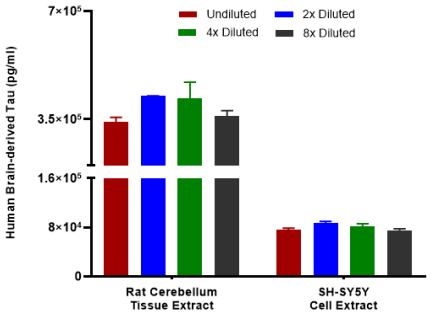

Fig3: Interpolated concentrations of native Brain-derived Tau in rat cerebellum and SH-SY5Y extract samples based on a 1000 µg/ml extract load.

Capture: HA723847, Brain-derived tau/BD-tau Rabbit mAb [PSH16-46]
Detector: HA723209, Brain-derived tau/BD-tau Rabbit mAb [PSH10-42]

Interpolated concentration of native Brain-derived Tau was measured in duplicate at different sample concentrations and interpolated from the Brain-derived Tau standard curves. The interpolated dilution factor corrected values were plotted (mean +/- SD, n=2). The mean Brain-derived Tau concentration was determined to be 386,318 pg/mL in rat cerebellum and 79,826 pg/mL in SH-SY5Y cell extract.

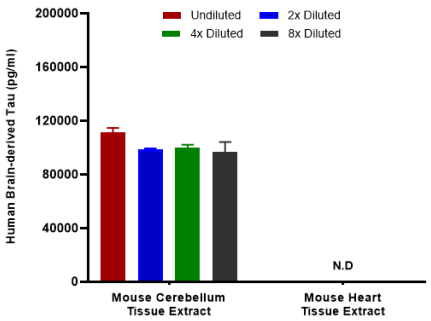

Fig4: Interpolated concentrations of native Brain-derived Tau in mouse cerebellum and mouse heart tissue extract samples based on a 1000 µg/ml extract load.

Capture: HA723847, Brain-derived tau/BD-tau Rabbit mAb [PSH16-46]
Detector: HA723209, Brain-derived tau/BD-tau Rabbit mAb [PSH10-42]

Interpolated concentration of native Brain-derived Tau was measured in duplicate at different sample concentrations and interpolated from the Brain-derived Tau standard curves. The interpolated dilution factor corrected values were plotted (mean +/- SD, n=2). The mean Brain-derived Tau concentration was determined to be 101,752 pg/mL in mouse cerebellum tissue extract. There was no detectable signal in mouse heart tissue extract.

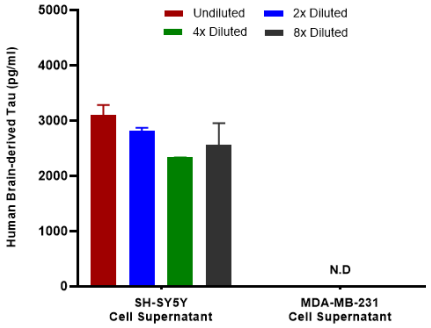

Fig5: Interpolated concentrations of native Brain-derived Tau in SH-SY5Y and MDA-MB-231 cell extract samples based on a 1000 µg/ml extract load.

Capture: HA723847, Brain-derived tau/BD-tau Rabbit mAb [PSH16-46]
Detector: HA723209, Brain-derived tau/BD-tau Rabbit mAb [PSH10-42]

Interpolated concentration of native Brain-derived Tau was measured in duplicate at different sample concentrations and interpolated from the Brain-derived Tau standard curves. The mean Brain-derived Tau concentration was determined to be 40,370 pg/mL in SH-SY5Y cell extract. There was no detectable signal in MDA-MB-231 cell extract.

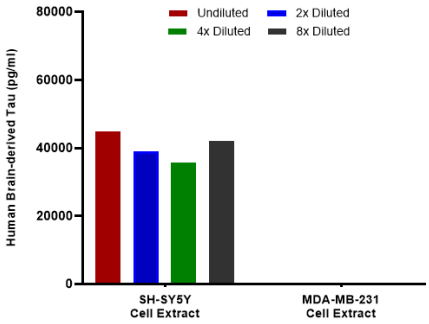

Fig6: Interpolated concentrations of native Brain-derived Tau in SH-SY5Y and MDA-MB-231 cell extract samples based on a 1000 µg/ml extract load.

Capture: HA723847, Brain-derived tau/BD-tau Rabbit mAb [PSH16-46]
Detector: HA723848, Brain-derived tau/BD-tau Rabbit mAb [PSH10-47]

Interpolated concentration of native Brain-derived Tau was measured in duplicate at different sample concentrations and interpolated from the Brain-derived Tau standard curves. The mean Brain-derived Tau concentration was determined to be 40,370 pg/mL in SH-SY5Y cell extract. There was no detectable signal in MDA-MB-231 cell extract.

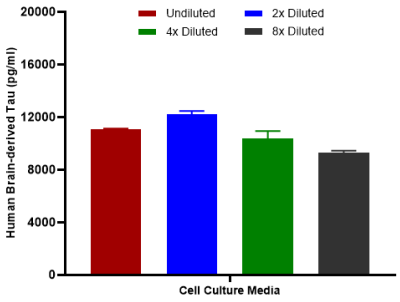

Fig7: Interpolated concentrations of spiked Brain-derived Tau in cell culture media samples.

Capture: HA723847, Brain-derived tau/BD-tau Rabbit mAb [PSH16-46]
Detector: HA723209, Brain-derived tau/BD-tau Rabbit mAb [PSH10-42]

The concentrations of Brain-derived Tau were measured in duplicates, interpolated from the Brain-derived Tau standard curves and corrected for sample dilution. Diluted samples are as follows: 50% cell culture media with FBS. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2).

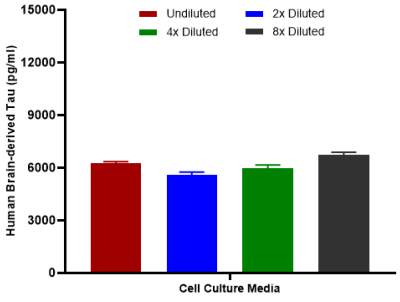

Fig8: Interpolated concentrations of spiked Brain-derived Tau in cell culture media samples.

Capture: HA723847, Brain-derived tau/BD-tau Rabbit mAb [PSH16-46]
Detector: HA723848, Brain-derived tau/BD-tau Rabbit mAb [PSH10-47]

The concentrations of Brain-derived Tau were measured in duplicates, interpolated from the Brain-derived Tau standard curves and corrected for sample dilution. Diluted samples are as follows: 50% cell culture media with FBS. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2).

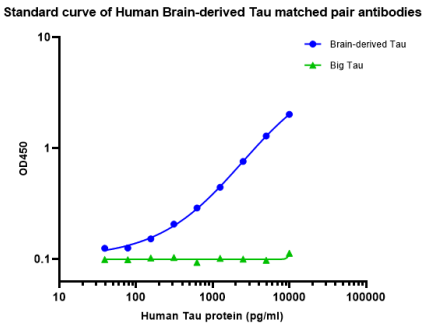

Fig9: Coating Ab: HA723847, 5ug/ml
Co-Incubation: 1:2 serially diluted human Brain-derived Tau protein and Big Tau from HuaBio starting from a concentration of 10,000 pg/ml and Detect Ab: HA723209, Biotin, 0.2 μg/ml (30℃,120rpm, 60min).
SA-HRP: 1:20,000 (50ng/ml) (30℃, 120rpm, 30min).

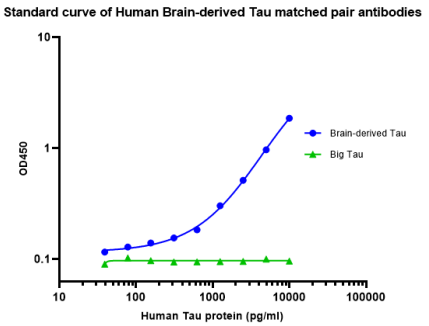

Fig10: Coating Ab: HA723847, 5ug/ml
Co-Incubation: 1:2 serially diluted human Brain-derived Tau protein and Big Tau from HuaBio starting from a concentration of 10,000 pg/ml and Detect Ab: HA723848, Biotin, 0.2 μg/ml (30℃, 120rpm, 60min).
SA-HRP: 1:20,000 (50ng/ml) (30℃, 120rpm, 30min).

Note: All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE".

Background References

1. Gonzalez-Ortiz, F., Kirsebom, BE., Contador, J. et al. Plasma brain-derived tau is an amyloid-associated neurodegeneration biomarker in Alzheimer's disease. Nat Commun 15, 2908 (2024). https://doi.org/10.1038/s41467-024-47286-5
2. Gonzalez-Ortiz F, Turton M, Kac PR, Smirnov D, Premi E, Ghidoni R, Benussi L, Cantoni V, Saraceno C, Rivolta J, Ashton NJ, Borroni B, Galasko D, Harrison P, Zetterberg H, Blennow K, Karikari TK. Brain-derived tau: a novel blood-based biomarker for Alzheimer's disease-type neurodegeneration. Brain. 2023 Mar 1;146(3):1152-1165. doi: 10.1093/brain/awac407