

# For Alzheimer's disease research

## Phosphorylated Tau T181 ELISA kit *Wako*

Tau is a microtubule-associated protein that is mainly expressed in neurons in the central nervous system and regulates stability of microtubules. In the brain of patients with Alzheimer's disease, the aggregates of phosphorylated Tau, and neurofibrillary tangles are formed, and the extent of formation has been reported to correlate with severity of dementia. Therefore, Tau has been studied to investigate causes of Alzheimer's disease and to develop drugs for treating the disease. As the concentration of Tau and phosphorylated Tau in cerebrospinal fluid (CSF) of Alzheimer's disease patients is higher than that of non-dementia patients, it is important to measure the concentration of Tau and phosphorylated Tau in CSF. This ELISA is high sensitive kit to measure Tau including phosphorylated threonine 181 (pT181) in CSF.

### Features

- **Small sample volume**  
20 $\mu$ L
- **High sensitivity**  
4.40-500pg/mL
- **Detects differences between dementia stages**

### Components

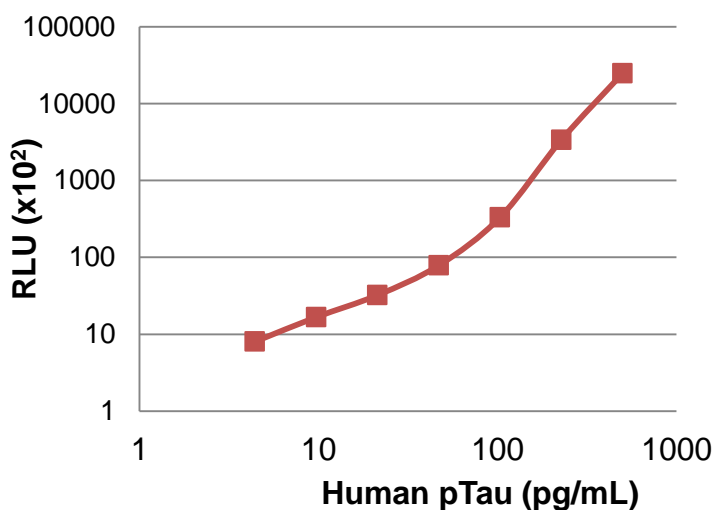
- (1) Antibody-coated Plate..... 1 Plate
- (2) Phosphorylated Tau Standard..... 1 Bottle
- (3) Buffer..... 60mL
- (4) Biotin-conjugated Antibody Solution..... 100 $\mu$ L
- (5) Peroxidase-conjugated Streptavidin Solution..... 100 $\mu$ L
- (6) Luminescent Reagent 1..... 6mL
- (7) Luminescent Reagent 2..... 6mL
- (8) Wash Solution (20 $\times$ )..... 50mL
- (9) Standard Buffer..... 12mL
- (10) Sample Buffer..... 50mL
- (11) Plate Seal..... 3 sheets

### Performance

Range	4.40-500pg/mL
Specificity	Phosphorylated Tau T181
Sample*	Human cerebrospinal fluid (CSF)
Sample volume	20 $\mu$ L
Assay time	Approx. 20 hours
Detection method	Luminescence method**

\* Not recommended for plasma and serum.

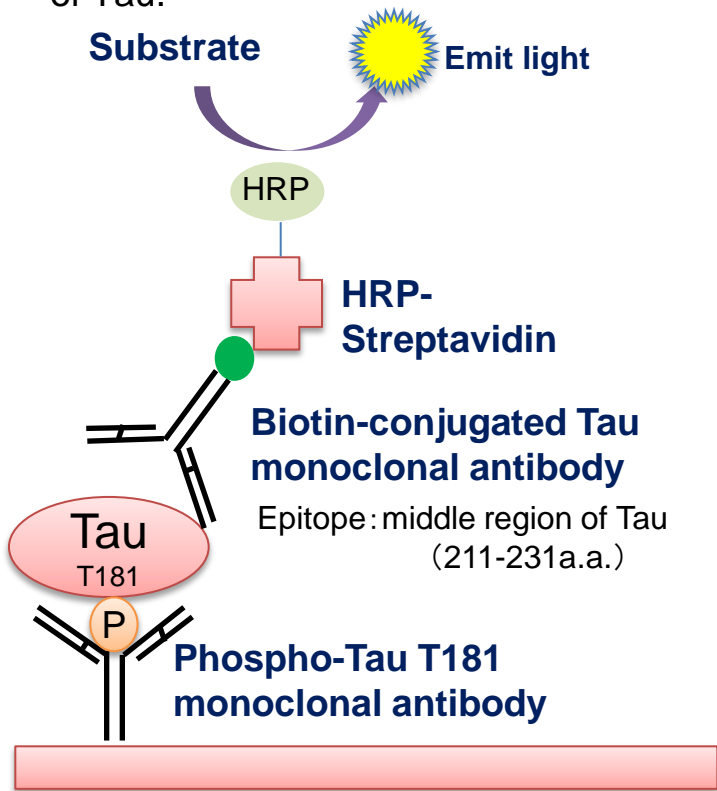
\*\* Requires luminescence plate reader for measurement.



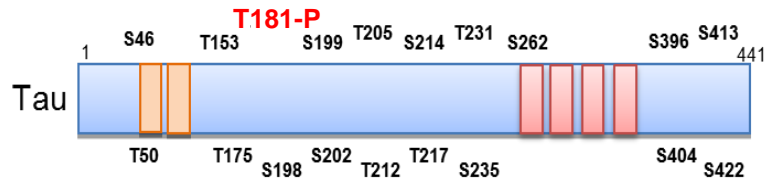
Product Name	Wako Cat. No	Pkg. Size	Grade	Storage Condition
Phosphorylated Tau T181 ELISA kit <i>Wako</i>	298-81701	96 tests	For Immunochemistry	Keep at 2-10°C

## Assay Principle

This kit is sandwich ELISA measuring phosphorylated Tau T181 by using 2 monoclonal antibodies. One recognizes phosphorylated Tau T181, and another reacts middle region of Tau.

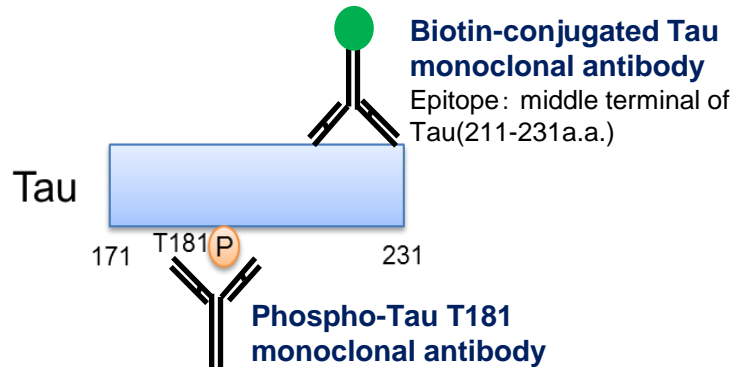


### Phosphorylation sites of Tau



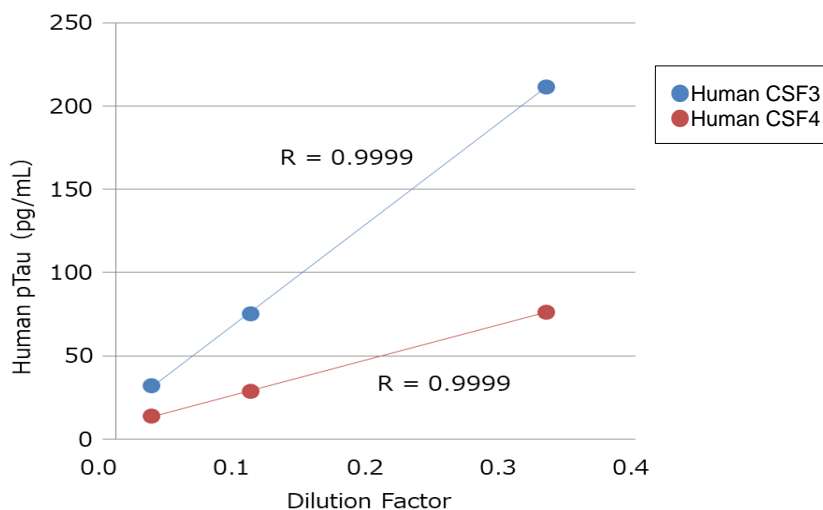
### Standard

Synthetic peptide (Tau 171-231 a.a. with pT181)



## Spike-recovery and linearity of dilution

Human CSF 1	Not spiked	+ 20pg/mL pTau		+ 100pg/mL pTau		+ 200 pg/mL pTau	
	Measured	Measured	Recovery	Measured	Recovery	Measured	Recovery
	53.7pg/mL	73.4pg/mL	98.5%	147pg/mL	93.3%	271pg/mL	109%
Human CSF 2	Not spiked	+ 20pg/mL pTau		+ 100pg/mL pTau		+ 200 pg/mL pTau	
	Measured	Measured	Recovery	Measured	Recovery	Measured	Recovery
	14.0pg/mL	32.8pg/mL	94.0%	107pg/mL	93.0%	225pg/mL	106%

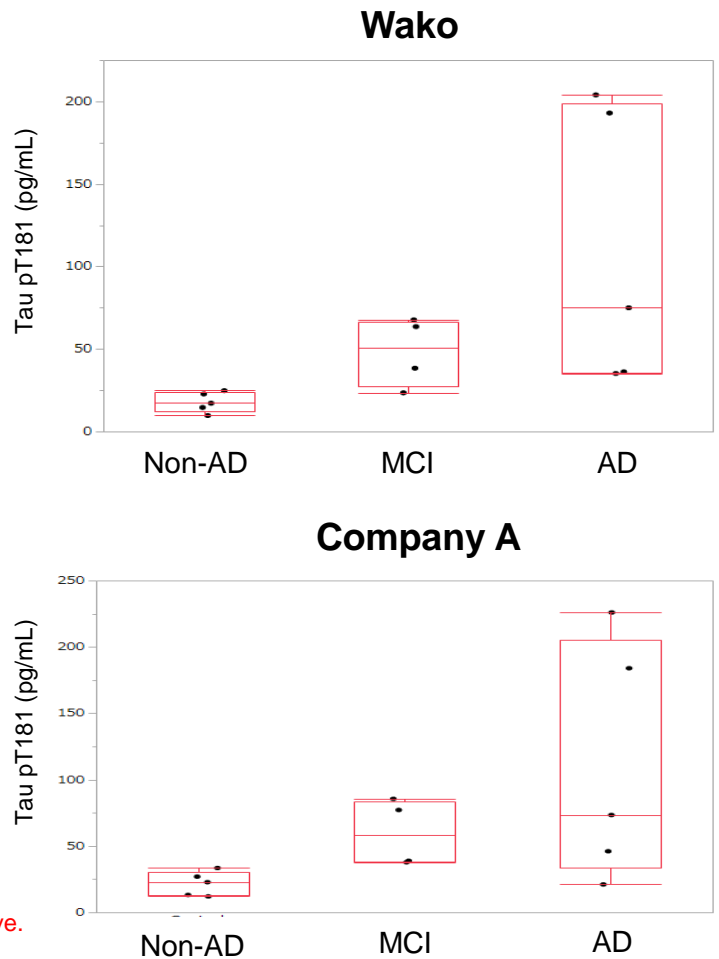


## Human CSF measurements at different dementia stages

Cerebrospinal fluids(CSF) from patients were measured with our ELISA kit and competitor's kit. The samples are from Alzheimer disease (AD) , mild cognitive impairment(MCI) and non-dementia patients.

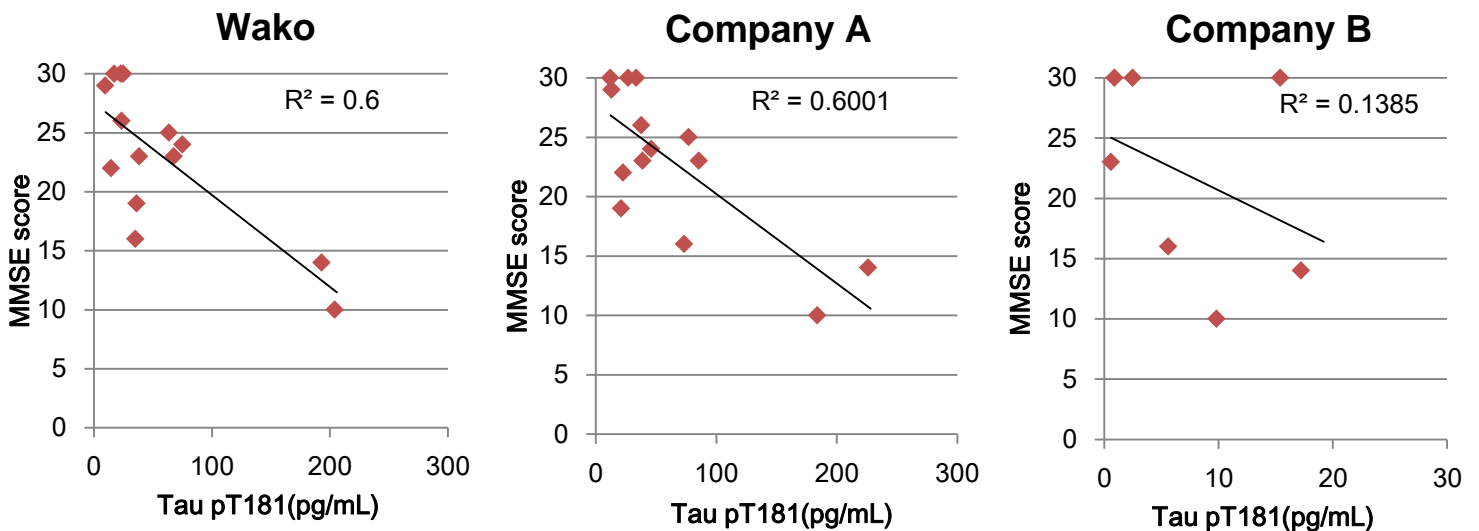
	MMSE Score	Wako	Company A	Company B
Non-AD1	30	22.8	12.1	15.4
Non-AD2	22	14.6	22.8	ND
Non-AD3	29	9.7	13.2	ND
Non-AD4	30	17.2	27	2.48
Non-AD5	30	24.8	33.5	0.88
MCI1	26	23.5	37.8	ND
MCI2	23	67.7	85.6	0.58
MCI3	23	38.4	38.9	ND
MCI4	24	ND	ND	ND
MCI5	25	63.6	77.2	ND
AD1	16	35.2	73.4	5.58
AD2	19	36.2	21.1	ND
AD3	14	193	226	17.2
AD4	24	75	46.1	ND
AD5	10	204	184	9.81

Red: Low reliability because of not detected or out of standard curve.



A significant difference observed between non-dementia, MCI and Alzheimer's disease.

## Correlation between Tau pT181 concentration and MMSE score



MMSE score : diagnosis Inquiry test score of cognitive function  
 30-28 Normal  
 27-24 Suspected of mild cognitive impairment  
 $\leq 23$  Suspected of dementia

The high correlation was observed between Tau pT181 concentration and MMSE score.

## Related products

### ■ Tau antibodies

Reactive Tau	Product Name	Wako Cat. No	Pkg. Size	Grade	Storage Condition
Total Tau	Anti Human/Mouse/Rat Tau, Rat Monoclonal Antibody( <b>RTM38</b> )	011-26891 017-26893	10μL 50μL	For Immunochemistry	Keep at -20°C
Total Tau (Human specific)	Anti Human Tau, Rat Monoclonal Antibody( <b>RTM49</b> )	019-26951 015-26953	10μL 50μL	For Immunochemistry	Keep at -20°C
Total Tau (Mouse specific)	Anti Mouse Tau, Rat Monoclonal Antibody( <b>RTM47</b> )	016-26961 012-26963	10μL 50μL	For Immunochemistry	Keep at -20°C
Phosho-tau T181	Anti Phosphorylated Tau T181, Rat Monoclonal Antibody ( <b>2E2-A6</b> )	012-26603 016-26601	10μL 50μL	For Immunochemistry	Keep at -20°C
Phosho-tau S199	Anti Phosphorylated Tau S199, Rat Monoclonal Antibody ( <b>5B8-1E2</b> )	019-26613 013-26611	10μL 50μL	For Immunochemistry	Keep at -20°C
Phosho-tau S262	Anti Phosphorylated Tau S262, Rat Monoclonal Antibody ( <b>TIP1-35</b> )	014-27121 010-27123	10μL 50μL	For Immunochemistry	Keep at -20°C
Phosho-tau S422	Anti Phosphorylated Tau S422, Monoclonal Antibody( <b>AP422</b> )	016-27681 012-27683	10μL 50μL	For Immunochemistry	Keep at -20°C
2N-Tau	Anti 2N-Tau, Rat Monoclonal Antibody( <b>2C2</b> )	017-27351 013-27353	10μL 50μL	For Immunochemistry	Keep at -20°C
3R-Tau	Anti 3R-Tau, Rat Monoclonal Antibody( <b>2A1-1F4</b> )	012-26583 016-26581	10μL 50μL	For Immunochemistry	Keep at -20°C
4R-Tau	Anti 4R-Tau, Monoclonal Antibody( <b>3E8-1A6</b> )	019-26593 013-26591	10μL 50μL	For Immunochemistry	Keep at -20°C

### ■ Aβ oligomer ELISA kit

Product Name	Wako Cat. No	Pkg. Size	Grade	Storage Condition
High Molecular Amyloid β Oligomer ELISA Kit Wako	298-80101	96 tests	For Immunochemistry	Keep at 2-10°C

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