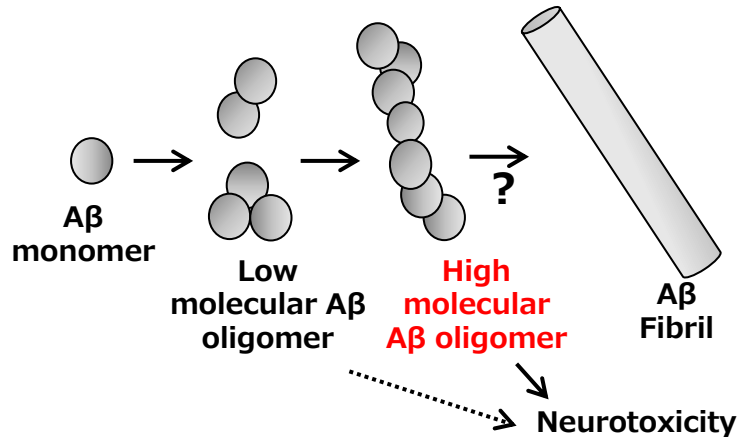


For Alzheimer's disease research High Molecular Amyloid β Oligomer ELISA Kit *Wako* Ver.2

Recently, amyloid β (A β) oligomer is focused as a cause of Alzheimer's disease. A β oligomer is a soluble aggregate by polymerized of A β monomers, and it impairs synaptic function of neurons. A β oligomer has several types, low molecular A β oligomers(Low-n oligomer) and high molecular A β oligomers (ADDL, A β *56 and proto-fibril). It has reported that A β * 56 (12-mer) oligomer greatly affects memory damage¹⁾, and in cognitively normal adults A β *56 increased ahead of amyloid- β dimers or amyloid- β trimers, and pathological tau proteins and postsynaptic proteins correlated with A β *56, but not amyloid- β dimers or amyloid- β trimers²⁾. This item is an ELISA kit that can specifically measure high molecular A β oligomers.



- 1) Lesné, S., et al.: *Nature*, **440**, 7082, 352(2006).
2) Lesné, S. E., et al.: *Brain*, **136**, 1383(2013).

Features

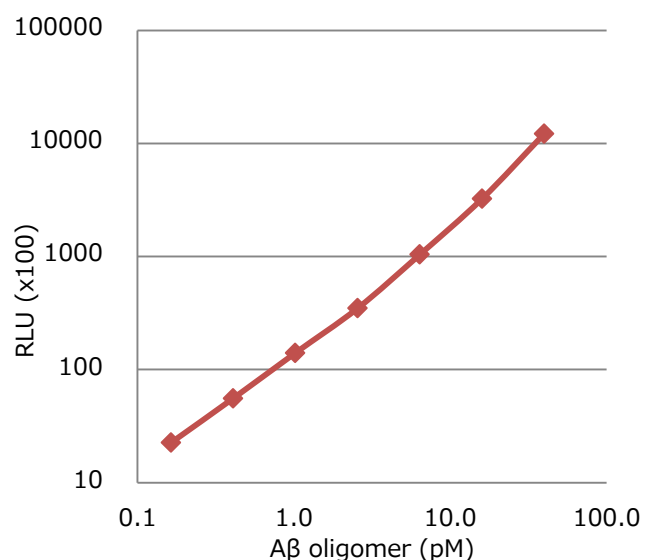
- **Detects in serum and plasma, CSF sample**
- **Specifically reactive with ≥ 9 mer A β oligomer**

Components

- | | |
|---|-------------|
| (1) Antibody (BAN50)-coated Plate | 1Plate |
| (2) Standard Solution (10 nM) | 100 μ L |
| (3) Buffer | 60mL |
| (4) Biotin-conjugated Antibody(BAN50) Solution | 100 μ L |
| (5) Peroxidase-conjugated Streptavidin Solution | 100 μ L |
| (6) Luminescent Reagent 1 | 6mL |
| (7) Luminescent Reagent 2 | 6mL |
| (8) Wash Solution (10 x) | 100mL |
| (9) Sample Buffer for Serum/Plasma | 50mL |
| (10) Plate Seal | 4 sheets |

Performance

Standard curve range	0.41-100 pM (Cerebrospinal fluid) 0.16-40 pM (serum or plasma(EDTA))
Reactive A β oligomers	≥ 9 mer A β oligomer
Sample	Serum, Plasma(EDTA), Cerebrospinal fluid(CSF), In vitro A β oligomer
Cross-reactivity	Human
Sample volume	CSF:25 μ L(4 times dilution) Serum, plasma:50 μ L(2 times dilution)
Assay time	4.5 hours
Detection method	Luminescence method**

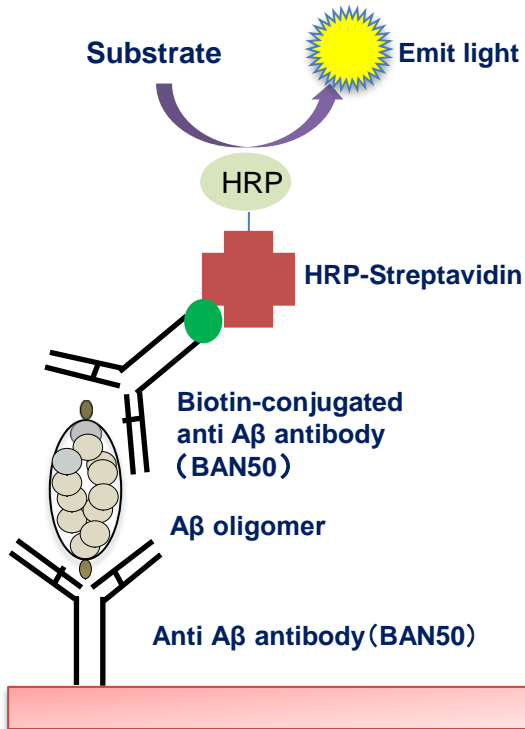


- * Calculated based on 16-mer MAP peptide.
** Requires luminescence plate reader for measurement.

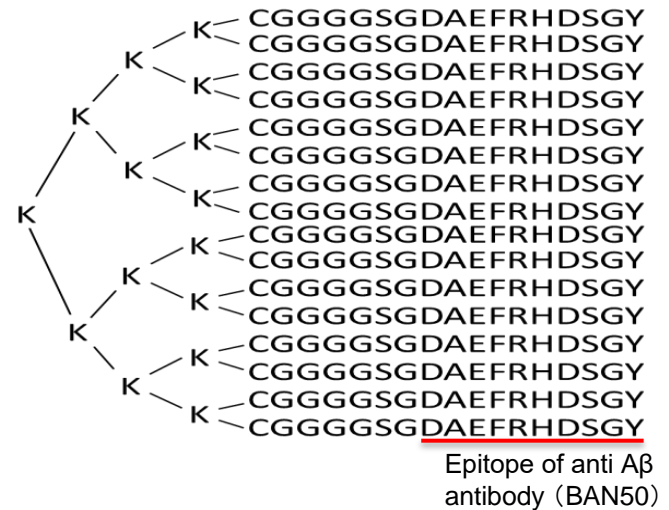
Product Name	Wako Cat. No	Pkg. Size	Grade	Storage Condition
High Molecular Amyloid β Oligomer ELISA Kit <i>Wako</i> Ver.2	290-82001	96 tests	For Immunochemistry	Keep at 2-10 $^{\circ}$ C

Assay principal

This ELISA kit is designed to measure ≥ 9 -mer A β oligomer specifically by using same A β antibody (BAN50) for capture and detection^{3,4}. As a standard, a 16-mer MAP peptide with 16 epitopes of anti A β antibody (BAN50) is used⁴.



OStandard (16-mer MAP peptide)

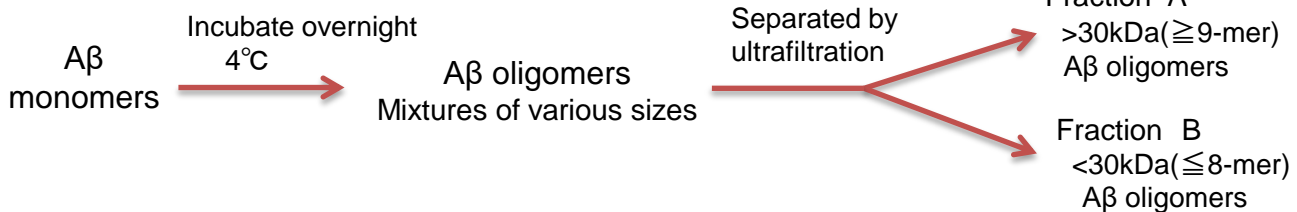


3) Fukumoto, H., et al.: *FASEB J.*, **24**, 2716(2010).

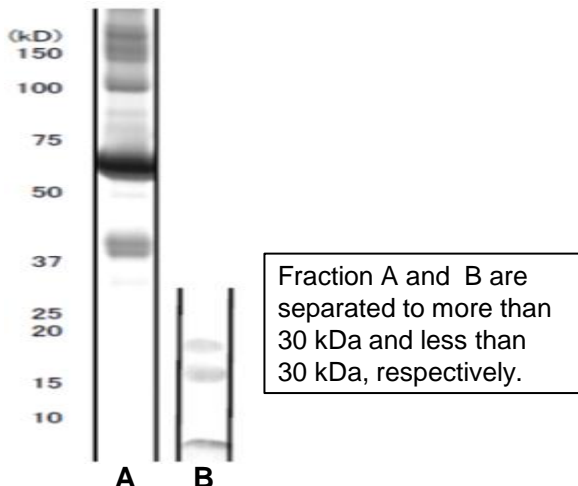
4) Kasai, T., et al.: *Biochem. Biophys. Res. Commun.*, **422**, 3, 375(2012).

Specificity for A β oligomers in the ELISA

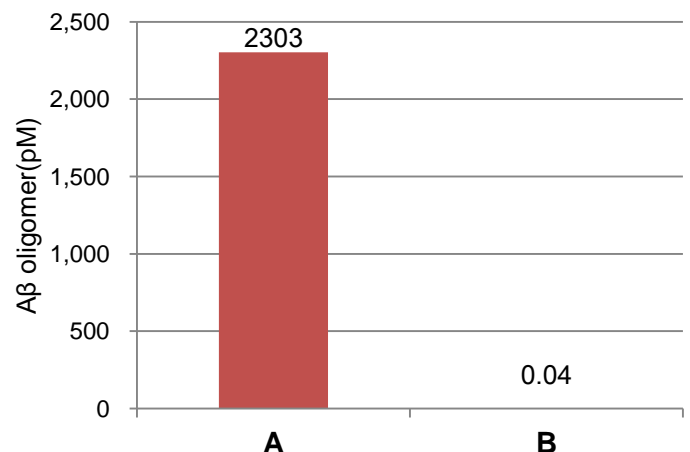
A β monomers were incubated the solution at 4°C overnight in order to synthesize various size of A β oligomers. They were separated Fraction A and Fraction B by ultrafiltration. The fractions were analyzed by western blotting and the A β oligomer ELISA.



Western blotting using A β antibody (BAN50)



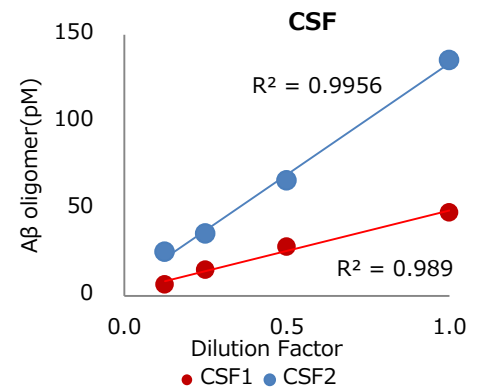
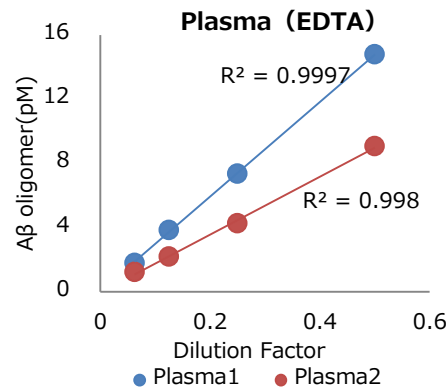
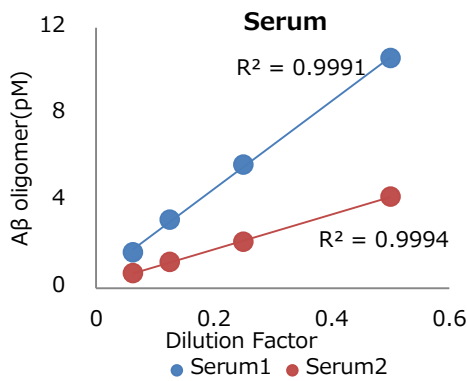
A β oligomer ELISA



A strong signal was exhibited in the fraction A containing 9-mer and more (>30 kDa), whereas few signal was detected in fraction B containing 8-mer and smaller (<30 kDa).

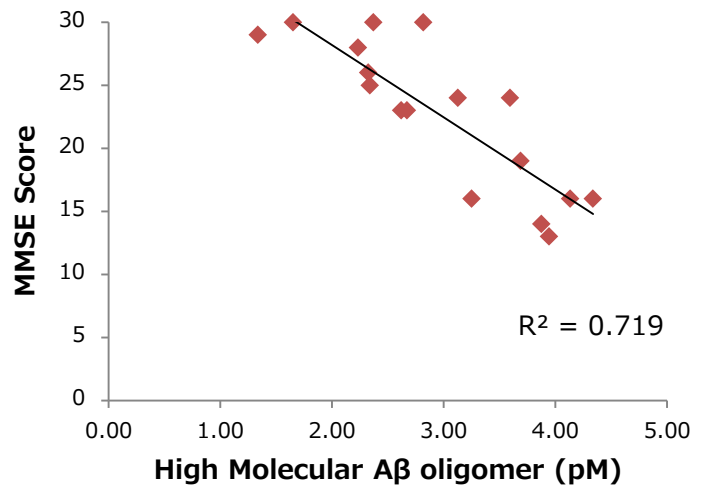
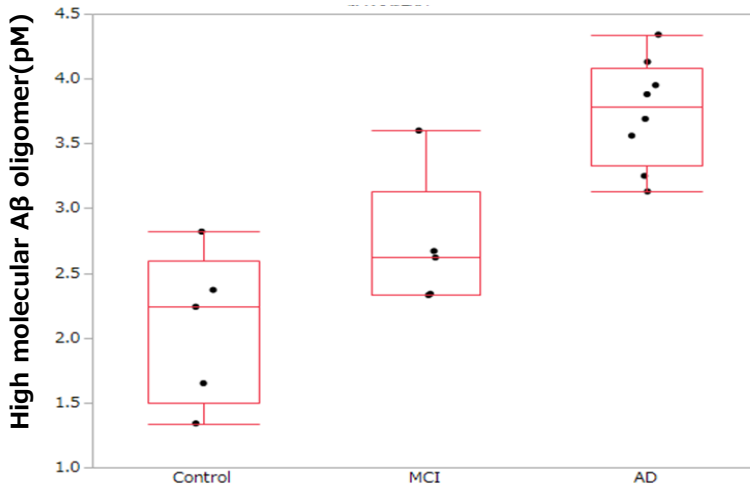
Example of measurement 1 - spiked recovery test and dilution linearity

Human plasma	Not spiked	+0.5pM Std.		+0.1pM Std.		+5pM Std.		+30pM Std.	
	Assay value	Assay value	Recovery	Assay value	Recovery	Assay value	Recovery	Assay value	Recovery
	1.85pM	2.36pM	102%	2.85pM	100%	7.11pM	105%	31.2pM	97.8%
Human serum	Not spiked	+0.5pM Std.		+0.1pM Std.		+5pM Std.		+30pM Std.	
	Assay value	Assay value	Recovery	Assay value	Recovery	Assay value	Recovery	Assay value	Recovery
	1.58pM	2.07pM	98%	2.59pM	101%	6.64pM	101%	31.9pM	101%
Human CSF1	Not spiked	+3pM Std.		+6pM Std.		+15pM Std.			
	Assay value	Assay value	Recovery	Assay value	Recovery	Assay value	Recovery		
	5.16pM	8.01pM	95%	10.6pM	91%	18.1pM	86%		
Human CSF2	Not spiked	+3pM Std.		+6pM Std.		+15pM Std.			
	Assay value	Assay value	Recovery	Assay value	Recovery	Assay value	Recovery		
	29.1pM	38.8pM	97%	44.0pM	99.3%	59.9pM	88%		



Example of measurement 2 - CSF sample-

Cerebrospinal fluids (CSF) of patients with Alzheimer disease (AD) and Mild Cognitive Impairment (MCI), non-dementia patients (control), were measured with our ELISA kit and competitor's kit.



	Age	Sex	MMSE ×3	CSF Aβ oligomer(pM)
Control n=5	69	M	30	2.37
	60	F	30	1.65
	59	M	30	2.82
	46	M	28	2.24
	60	F	29	1.34
MCI n=5	69	F	24	3.6
	76	M	23	2.62
	82	M	26	2.33
	69	F	23	2.67
	73	F	25	2.34
AD n=8	79	F	10	3.56
	88	M	24	3.13
	62	M	16	4.13
	78	M	13	3.95
	63	M	14	3.88
	74	F	16	3.25
	76	M	19	3.69
	84	M	16	4.34

There was a significant difference between Control, MCI and AD.

High molecular Aβ oligomer correlated with MMSE score.

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

Related products

■ A β ELISA kit

Product Name	Wako Cat. No	Pkg. Size	Grade	Storage Condition
Human β Amyloid(1-40) ELISA Kit <i>Wako</i>	292-62301	96 tests	For Immunochemistry	Keep at 2-10°C
Human β Amyloid(1-40)ELISA Kit <i>Wako II</i>	298-64601	96 tests	For Immunochemistry	Keep at 2-10°C
Human/Rat β Amyloid(40)ELISA Kit <i>Wako</i>	294-62501	96 tests	For Immunochemistry	Keep at 2-10°C
Human/Rat β Amyloid(40)ELISA Kit <i>Wako II</i>	294-64701	96 tests	For Immunochemistry	Keep at 2-10°C
Human β Amyloid(1-42) ELISA Kit <i>Wako</i>	298-62401	96 tests	For Immunochemistry	Keep at 2-10°C
Human β Amyloid(1-42) ELISA Kit <i>Wako, High Sensitive</i>	296-64401	96 tests	For Immunochemistry	Keep at 2-10°C
Human/Rat β Amyloid(42)ELISA Kit <i>Wako</i>	290-62601	96 tests	For Immunochemistry	Keep at 2-10°C
Human/Rat β Amyloid(42) ELISA Kit <i>Wako, High Sensitive</i>	292-64501	96 tests	For Immunochemistry	Keep at 2-10°C

■ Tau ELISA kit

Product Name	Wako Cat. No	Pkg. Size	Grade	Storage Condition
Tau ELISA Kit <i>Wako</i>	296-80401	96 tests	For Immunochemistry	Keep at 2-10°C
Phosphorylated Tau T181 ELISA Kit <i>Wako</i>	298-81701	96 tests	For Immunochemistry	Keep at 2-10°C

■ A β and APP antibodies

Product Name	Wako Cat. No	Pkg. Size	Grade	Storage Condition
Anti Human Amyloid β , Monoclonal Antibody (BAN50)	017-26871 013-26873	10 μ L 50 μ L	For Immunochemistry	Keep at -20°C
Anti Amyloid β 40, Monoclonal Antibody (BA27)	018-26921 014-26923	10 μ L 50 μ L	For Immunochemistry	Keep at -20°C
Anti Amyloid β 42(43), Monoclonal Antibody (BC05)	014-26901 010-26903	10 μ L 50 μ L	For Immunochemistry	Keep at -20°C
Anti Amyloid β , Monoclonal Antibody (BNT77)	014-26881 010-26883	10 μ L 50 μ L	For Immunochemistry	Keep at -20°C
Anti Amyloid β , Monoclonal Antibody (2C8)	012-27781	50 μ L	For Immunochemistry	Keep at -20°C
Anti Amyloid Precursor Protein, Monoclonal Antibody(3E9)	014-27241 010-27243	10 μ L 50 μ L	For Immunochemistry	Keep at -20°C

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