

Wako

# 阿尔茨海默病研究用试剂盒 for Alzheimer's Disease Research

## ● $\beta$ Amyloid ELISA Kit Wako Series

- Human  $\beta$  Amyloid (1-40) ELISA Kit Wako
- Human  $\beta$  Amyloid (1-40) ELISA Kit Wako II
- Human  $\beta$  Amyloid (1-42) ELISA Kit Wako
- Human  $\beta$  Amyloid (1-42) ELISA Kit Wako High-Sensitive
- Human/Rat  $\beta$  Amyloid (40) ELISA Kit Wako
- Human/Rat  $\beta$  Amyloid (40) ELISA Kit Wako II
- Human/Rat  $\beta$  Amyloid (42) ELISA Kit Wako
- Human/Rat  $\beta$  Amyloid (42) ELISA Kit v High-Sensitive

### for quantitative determination of $\beta$ Amyloid peptide 40 and 42 $\beta$ Amyloid ELISA Kits

Alzheimer's Disease (AD) is characterized by the presence of extracellular senile plaques (SPs) and intracellular neurofibrillary tangles (NFT) in the brain. The major protein component of SPs is  $\beta$  Amyloid peptide ( $A\beta$ ) 40 and 42(43).  $A\beta$  42 is more prone to aggregate than  $A\beta$ . Therefore the initial  $A\beta$  deposition begins with  $A\beta$  42(43) but not with  $A\beta$  42(43)-positive and  $A\beta$  40-negative plaques may represent early-stage diffuse type SPs, and  $A\beta$  40-positive plaque appears in the advanced stage, especially more often in the cored portion of the mature plaque.

In these kits, we use the monoclonal antibodies which specifically detect  $A\beta$ . Therefore these kits are designed to be used for the quantitative determination of  $A\beta$  in samples such as tissue culture medium, tissue homogenate, CSF and plasma.



#### [Features]

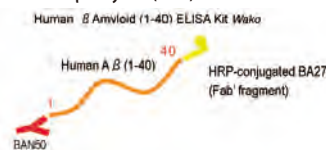
1. These kits are designed to be used for the quantitative determination of  $A\beta$  in samples such as tissue culture medium, tissue homogenate, CSF and plasma.
2. These kits use the monoclonal antibodies that were developed by Takeda Pharmaceutical Company, Ltd.  
BAN50: Specifically detects the N-terminal of  $A\beta$  (1-16)  
BNT77: Specifically detects the  $A\beta$  (11-28) of  $A\beta$   
BA27: Specifically detects the C-terminal of  $A\beta$  40  
BC05: Specifically detects the C-terminal of  $A\beta$  42

#### [Kit Contents]

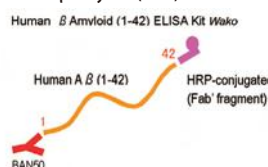
| ( Keep at 2~10C )              |                |
|--------------------------------|----------------|
| 1) Mab-coated Microtiter Plate | 1 plate        |
| 2) Standard Solution           | 2 vials x 2 mL |
| 3) Standard Diluent            | 1 vial x 30 mL |
| 4) Wash Solution (20 x)        | 1 vial x 50 mL |
| 5) HRP-conjugated MAb Solution | 1 vial x 12 mL |
| 6) TMB Solution                | 1 vial x 12 mL |
| 7) Stop Solution               | 1 vial x 12 mL |
| 8) Plate Seal                  | 3 sheets       |

#### [Principle]

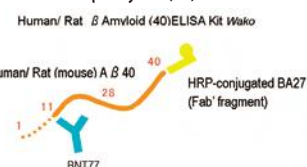
##### 1. Human $\beta$ Amyloid (1-40) ELISA Kit Wako



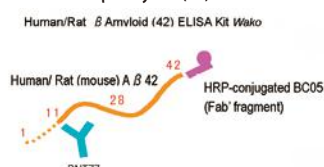
##### 2. Human $\beta$ Amyloid (1-42) ELISA Kit Wako



##### 3. Human/ Rat $\beta$ Amyloid (40) ELISA Kit Wako



##### 4. Human/ Rat $\beta$ Amyloid (42) ELISA Kit Wako



| Description                                                                                                                                                   | Wako Cat. #<br>(Pkg. Size) | $\beta$ Amyloid, measured |                           |                                |                                |                  |                  | Dynamic<br>Range<br>(pmol/L) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|------------------|------------------|------------------------------|
|                                                                                                                                                               |                            | human<br>A $\beta$ (1-40) | human<br>A $\beta$ (1-42) | rat(mouse)<br>A $\beta$ (1-40) | rat(mouse)<br>A $\beta$ (1-42) | A $\beta$ (x-40) | A $\beta$ (x-42) |                              |
| <b>Human <math>\beta</math> Amyloid (1-40) ELISA Kit Wako</b><br>[BAN50/BA27(Fab')] ❶                                                                         | 292-62301<br>(96 tests)    | ●                         | —                         | —                              | —                              | —                | —                | 1.0~100                      |
| <b>Human <math>\beta</math> Amyloid (1-40) ELISA Kit Wako II *</b><br>[BAN50/BA27(Fab')] <sub>2</sub> ❷<br><i>Achieved stable antigen-antibody reaction</i>   | 298-64601<br>(96 tests)    | ●                         | —                         | —                              | —                              | —                | —                | 1.0~100                      |
| <b>Human <math>\beta</math> Amyloid (1-42) ELISA Kit Wako</b><br>[BAN50/BC05 (Fab')] ❸                                                                        | 298-62401<br>(96 tests)    | —                         | ●                         | —                              | —                              | —                | —                | 1.0~100                      |
| <b>Human <math>\beta</math> Amyloid (1-42) ELISA Kit Wako High-Sensitive**</b><br>[BAN50/BC05 (Fab')] ❹                                                       | 296-64401<br>(96 tests)    | —                         | ●                         | —                              | —                              | —                | —                | 0.1~20.0                     |
| <b>Human/Rat <math>\beta</math> Amyloid (40) ELISA Kit Wako</b><br>[BNT77/BA27(Fab')] ❺                                                                       | 294-62501<br>(96 tests)    | ●                         | —                         | ●                              | —                              | ●                | —                | 1.0~100                      |
| <b>Human/Rat <math>\beta</math> Amyloid (40) ELISA Kit Wako II *</b><br>[BNT77/BA27(Fab')] <sub>2</sub> ❻<br><i>Achieved stable antigen-antibody reaction</i> | 294-64701<br>(96 tests)    | ●                         | —                         | ●                              | —                              | ●                | —                | 1.0~100                      |
| <b>Human/Rat <math>\beta</math> Amyloid (42) ELISA Kit Wako</b><br>[BNT77/BC05(Fab')] ❼                                                                       | 290-62601<br>(96 tests)    | —                         | ●                         | —                              | ●                              | —                | ●                | 1.0~100                      |
| <b>Human/Rat <math>\beta</math> Amyloid (42) ELISA Kit Wako High-Sensitive**</b><br>[BNT77/BC05 (Fab')] ❽                                                     | 292-64501<br>(96 tests)    | —                         | ●                         | —                              | ●                              | —                | ●                | 0.1~20.0                     |

\*: Improved  $\beta$  Amyloid (1-40) and (x-40)\*\*\* Detection Kits

These products are detection kits that achieve more stable antigenantibody reactions by using F(ab') fragment of the labeled antibody BA27, which recognizes the C-terminal of A $\beta$  40, while the nonspecific binding is remaining to be reduced. Therefore, the stability in washing solution is improved. In Human/Rat kit, background is reduced.

\*\* : Highly Sensitive  $\beta$  Amyloid (1-42) and (x-42)\*\*\* Detection Kits

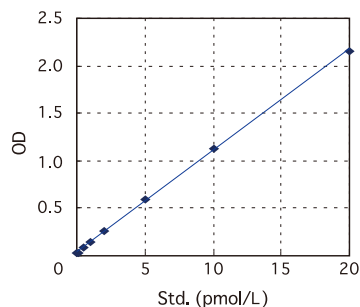
These ELISA kits detecting  $\beta$  amyloid (1-42) and (x-42) that ensure highly sensitive detection. These  $\beta$  amyloids are indicated to have a correlation with Alzheimer's disease. Detection sensitivity of the kits is about 10 times higher than that of the conventional products and the dynamic range is from 0.1 to 20.0 pmol/L. Fab' fragment of the labeled antibody is used as well so that the nonspecific binding is reduced.

\*\*\* Ab (x-40) and (x-42) are A $\beta$  peptide modified or cleaved at the N-terminal.

### Standard Curve

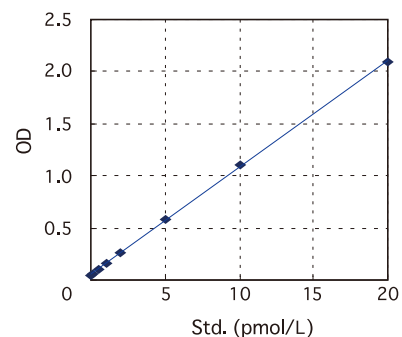
#### Human $\beta$ Amyloid (1-42) ELISA Kit Wako, High-Sensitive (❸)

| Std.<br>(pmol/L) | Mean(n=3)<br>(OD at 450nm) | CV<br>(%) |
|------------------|----------------------------|-----------|
| 0                | 0.023                      | 2.55      |
| 0.1              | 0.035                      | 2.86      |
| 0.5              | 0.083                      | 1.20      |
| 1.0              | 0.142                      | 1.46      |
| 2.0              | 0.266                      | 0.65      |
| 5.0              | 0.591                      | 2.72      |
| 10.0             | 1.132                      | 3.08      |
| 20.0             | 2.159                      | 2.20      |



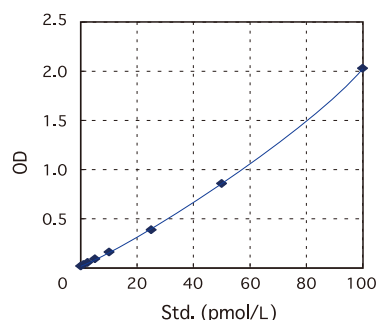
#### Human/Rat $\beta$ Amyloid (42) ELISA Kit Wako, High-Sensitive (❽)

| Std.<br>(pmol/L) | Mean(n=3)<br>(OD at 450nm) | CV<br>(%) |
|------------------|----------------------------|-----------|
| 0                | 0.046                      | 1.26      |
| 0.1              | 0.056                      | 2.74      |
| 0.5              | 0.097                      | 2.39      |
| 1.0              | 0.154                      | 0.99      |
| 2.0              | 0.264                      | 1.31      |
| 5.0              | 0.582                      | 1.07      |
| 10.0             | 1.099                      | 0.48      |
| 20.0             | 2.092                      | 1.01      |



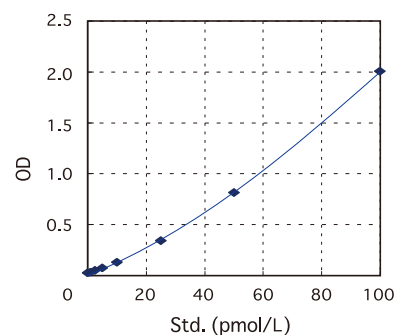
#### Human $\beta$ Amyloid (1-40) ELISA Kit Wako II (❷)

| Std.<br>(pmol/L) | Mean(n=3)<br>(OD at 450nm) | CV<br>(%) |
|------------------|----------------------------|-----------|
| 0                | 0.019                      | 2.99      |
| 1.0              | 0.033                      | 1.73      |
| 2.5              | 0.054                      | 0.00      |
| 5.0              | 0.093                      | 2.49      |
| 10.0             | 0.162                      | 6.67      |
| 25.0             | 0.388                      | 7.70      |
| 50.0             | 0.859                      | 9.14      |
| 100.0            | 2.031                      | 0.67      |



#### Human/Rat $\beta$ Amyloid (40) ELISA Kit Wako II (❺)

| Std.<br>(pmol/L) | Mean(n=3)<br>(OD at 450nm) | CV<br>(%) |
|------------------|----------------------------|-----------|
| 0                | 0.024                      | 16.61     |
| 1.0              | 0.032                      | 1.79      |
| 2.5              | 0.047                      | 2.13      |
| 5.0              | 0.073                      | 0.79      |
| 10.0             | 0.130                      | 0.55      |
| 25.0             | 0.340                      | 0.74      |
| 50.0             | 0.814                      | 1.72      |
| 100.0            | 2.005                      | 1.37      |



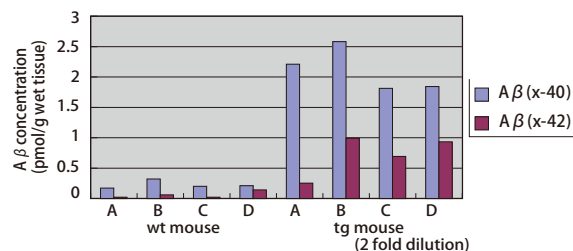
Reaction time for HRP-conjugated antibody is 2 hours.

## Application Data [1] human and mouse plasma



Blood was collected using vacuum blood collection tube containing EDTA-2K. Plasma was separated by centrifugation at 5000x g for 15 minutes at 4 °C and stored at -80 °C until used. The plasma sample was diluted 4-fold with Standard Diluent in the Kit and measured. Aβ (1-40) and Aβ (x-40) were measured by Human βAmyloid (1-40) ELISA Kit Wako II (Cat.# 298-64601, ②) and Human/Rat β Amyloid (40) ELISA Kit Wako II (Cat.#294-64701, ⑤)

## [2] mouse brain tissue



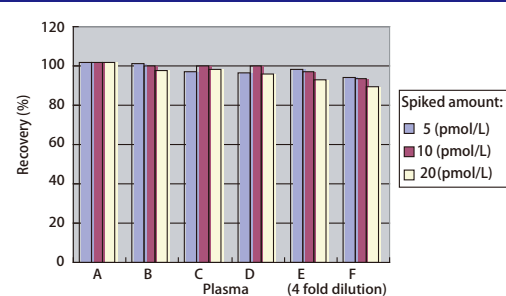
The hemisphere of 12-month mouse (J20) was extracted with 2 mL of Tris Saline and stored frozen at -20 °C until used. The brain sample was diluted 2-fold with Standard Diluent in the Kit and measured. A trace quantity of Aβ could be detected not only in the transgenic mice (tg) but in the wildtype mice (wt).

(Data provided by Prof. Iwatsubo and Instructor Hashimoto, Department of Neuropathology and Neuroscience, Graduate School of Pharmaceutical Sciences, University of Tokyo)

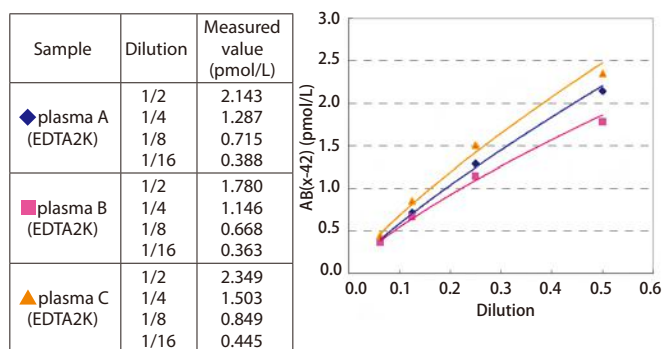
## Specificity (n=4)

| Synthetic Peptide   | Human Aβ(1-40) Kit II (Cat. #298-64601) ② | Human Aβ(1-42) Kit, High-Sensitive (Cat. #296-64401) ③ | Human/Rat Aβ(40) Kit II (Cat. #294-64701) ⑤ | Human/Rat Aβ(42) Kit, High-Sensitive (Cat. #292-64501) ⑥ |
|---------------------|-------------------------------------------|--------------------------------------------------------|---------------------------------------------|----------------------------------------------------------|
| Human Aβ(1-40)      | 100.0                                     | ≤0.1                                                   | 100.0                                       | ≤0.1                                                     |
| Human Aβ(1-42)      | ≤0.1                                      | 100.0                                                  | ≤0.1                                        | 100.0                                                    |
| Human Aβ(1-43)      | ≤0.1                                      | 13.5                                                   | ≤0.1                                        | 12.7                                                     |
| Rat(Mouse) Aβ(1-40) | 0.2                                       | ≤0.1                                                   | 156.0                                       | ≤0.1                                                     |
| Rat(Mouse)Aβ(1-42)  | 0.3                                       | 0.5                                                    | 0.3                                         | 156.0                                                    |

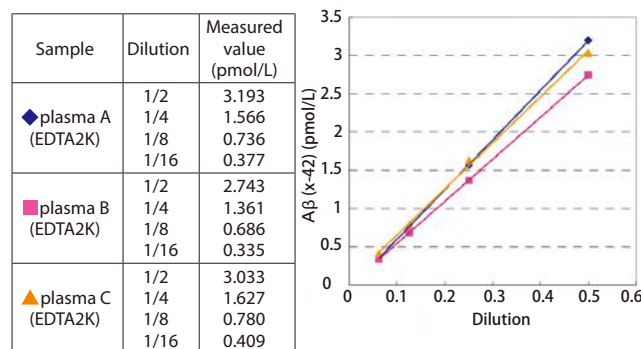
## Spike Recovery (n=3)



## Human β Amyloid (1-42) ELISA Kit, High-Sensitive ③

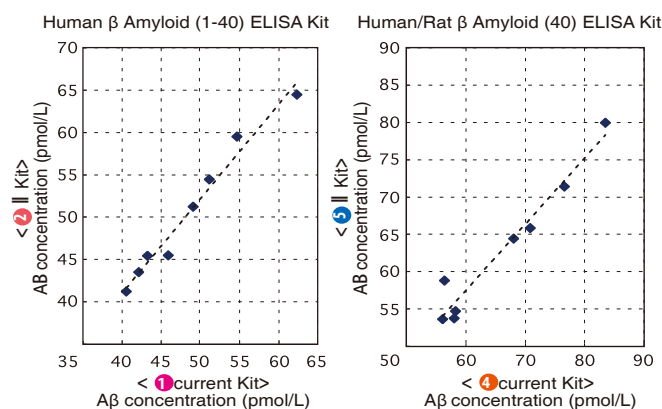


## Human / Rat β Amyloid (42) ELISA Kit, High-Sensitive ⑥



## II Kit-conventional kit Correlation

| Sample   | Human β Amyloid (1-40) ELISA Kit      |                                     | Human/Rat β Amyloid (40) ELISA Kit    |                                     |
|----------|---------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|
|          | II Kit (②) (F(ab') <sub>2</sub> -HRP) | the conventional kit (①) (Fab'-HRP) | II Kit (⑤) (F(ab') <sub>2</sub> -HRP) | the conventional kit (④) (Fab'-HRP) |
| plasma A | 45.9                                  | 45.5                                | 56.4                                  | 58.8                                |
| plasma B | 49.1                                  | 51.2                                | 68.1                                  | 64.4                                |
| plasma C | 62.4                                  | 64.4                                | 83.5                                  | 79.9                                |
| plasma D | 40.5                                  | 41.2                                | 56.1                                  | 53.6                                |
| plasma E | 42.1                                  | 43.5                                | 58.0                                  | 53.7                                |
| plasma F | 43.3                                  | 45.4                                | 58.3                                  | 54.7                                |
| plasma G | 54.7                                  | 59.5                                | 76.7                                  | 71.4                                |
| plasma H | 51.2                                  | 54.4                                | 70.9                                  | 65.8                                |



## [References]

- 1) Suzuki N., Cheung TT., Cai XD., Odaka A., Otvos L. Jr., Eckman C., Golde TE. And Younkin SG: *Science*, **264**, 1336 (1994).
- 2) Iwatsubo T., Odaka A., Suzuki N., Mizusawa N. and Ihara Y.: *Neuron*, **13**, 45 (1994).
- 3) Asami-Odaka A., Ishibashi, Y., Kikuchi T., Kitada C. and Suzuki N.: *Biochemistry*, **34**, 10272 (1995).
- 4) Fukumoto H., Tomita T., Matsunaga H., Ishibashi Y., Saido T.C. and Iwatsubo T.: *Neuroreport* **10**, 2965 (1999).
- 5) Scheuner D., Eckman C., Jensen M., Song X., Citron M., Suzuki N., Bird TD., Hardy J., Hutton M., Kukull W., Larson E., etc.: *Nature Med*, **2**, 864 (1996).
- 6) Kosaka T., Imagawa M., Seki K., Arai H., Sasaki H., Tsuji S., Asami-Odaka A., Fukushima T., Imai K. and Iwatsubo T.: *Neurology*, **48**, 741 (1997).

## ● Amyloid $\beta$ -Protein Immunohistostain Kit

对患有阿尔茨海默症的脑组织进行免疫组织染色

-检验出淀粉样蛋白 (A $\beta$ 40和A $\beta$ 42) 老人斑

### Histostaining of Alzheimer's Diseased Brain Tissues – Distinctive Histostaining of A $\beta$ 40 and A $\beta$ 42 plaques

#### Amyloid $\beta$ -Protein Immunohistostain Kit

Wako Cat. No. 299-56701 50 tests

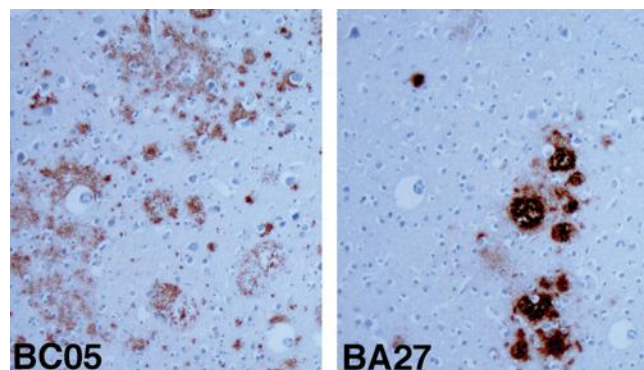
Keep at 2-10°C

## [Features]

1. Distinctive histostaining of A $\beta$  40 and 42 plaques in Alzheimer's diseased brain tissues
2. High sensitivity histo-immune detection of A $\beta$  plaques in tissue sections with low background

## [Kit Contents (50 tests)]

- |                                                            |                  |
|------------------------------------------------------------|------------------|
| 1. Blocking Serum                                          | 1 bottle x 10 mL |
| 2. Anti Mouse IgG (H+L), Goat, Conjugated                  | 1 bottle x 10 mL |
| 3. ABC Solution (Streptavidin-biotin-peroxidase Complex)   | 1 bottle x 10 mL |
| 4. Formic Acid (90%)                                       | 1 bottle x 15 mL |
| 5. Anti Amyloid $\beta$ -Protein (1-40), MAb, Clone # BA27 | 1 bottle x 7 mL  |
| 6. Anti Amyloid $\beta$ -Protein (1-42), MAb, Clone # BV05 | 1 bottle x 7 mL  |
| 7. Trypsin, Cryst                                          | 1 bottle x 50 L  |



Immunostaining of senile plaques in the consecutive sections of the brain affected with Alzheimer's Disease.

Left : A $\beta$  42-staining using Anti A $\beta$  42 Ab (Clone #BC05);  
Right : A $\beta$  40- staining using Anti A $\beta$  40 Ab (Clone #BA27)  
(provided by Dr. Iwatsubo, Univ. of Tokyo)

上述试剂仅供实验研究用，不可用作“医药品”、“食品”、“临床诊断”等。

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