

Abeta-pE3

Cat.No. 218 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization.
Storage	For reconstitution add 100 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 (ECL detection) (see remarks) IP: not tested yet ICC: not tested yet IHC: 1 : 400 (see remarks) IHC-P: 1 : 100 (see remarks) ELISA:
Clone	2-48
Subtype	IgG1 (κ light chain)
Immunogen	Synthetic peptide corresponding to the amino terminal part of human Abeta-pE3 (UniProt Id: P05067)
Epitop	AA 3 to 7 from human Abeta-pE3 (UniProt Id: P05067)
Reactivity	Reacts with: human (P05067), rat (P08592), mouse (P12023), monkey. Other species not tested yet.
Specificity	Specific for Abeta-pE3.
Remarks	WB: Due to the small size of this protein/peptide, we recommend a 16% Schaegger gel system. Detects purified Abeta pE3. Complex samples like brain extracts still have to be tested. Boil membrane in PBS after blotting for 3min. IHC: Antigen retrieval with formic acid is required. IHC-P: Antigen retrieval with citrate buffer pH 6, followed by formic acid treatment, is required for chromogenic detection.

Background

Amyloid deposits, also called plaques, of Alzheimer's patients consist of several protein components like the amyloid **beta**-peptides (**Abeta**, **Aβ**) 1-40/42 and additional C- and N-terminally truncated and modified fragments. Very abundant are the isoaspartate (isoAsp)-Abeta and **pyroglutamyl (pGlu)**-Abeta peptides. The latter are formed by cyclization of the N-terminal glutamate at position 3 or 11 catalyzed by glutaminyl cyclase (QC) resulting in very amyloidogenic and neurotoxic variants of Abeta; **Abeta-pE3** and Abeta pE11.

In contrast to extracellular plaques that do not perfectly correlate with Alzheimer's disease intraneuronal Abeta accumulation and vascular Abeta deposits have gained more and more evidence to be among the crucial factors responsible for progressive neuron loss.

Selected References for 218 011

Pyroglutamate Abeta pathology in APP/PS1KI mice, sporadic and familial Alzheimer's disease cases. Wirths O, Bethge T, Marcello A, Harmeier A, Jawhar S, Lucassen PJ, Multhaup G, Brody DL, Esparza T, Ingelsson M, Kalimo H, et al. Journal of neural transmission (Vienna, Austria : 1996) (2010) 1171: 85-96. . **WB, IHC-P; tested species: human**

Pyroglutamate amyloid β (Aβ) aggravates behavioral deficits in transgenic amyloid mouse model for Alzheimer disease. Wittman JL, Portelius E, Zetterberg H, Gustavsson MK, Schilling S, Koch B, Demuth HU, Blennow K, Wirths O, Bayer TA. The Journal of biological chemistry (2012) 28711: 8154-62. . **IP**

Glutaminyl cyclase contributes to the formation of focal and diffuse pyroglutamate (pGlu)-Aβ deposits in hippocampus via distinct cellular mechanisms. Hartlage-Rübsamen M, Morawski M, Wanek A, Jäger C, Zeitschel U, Koch B, Cynis H, Schilling S, Schliebs R, Demuth HU, Rossner S, et al. Acta neuropathologica (2011) 1216: 705-19. . **IHC**

Porphyromonas gingivalis Infection Induces Amyloid-β Accumulation in Monocytes/Macrophages. Nie R, Wu Z, Ni J, Zeng F, Yu W, Zhang Y, Kadowski T, Kashiwazaki H, Teeling JL, Zhou Y. Journal of Alzheimer's disease : JAD (2019) : . . **IHC; tested species: human, mouse**

Glutaminyl cyclase inhibitor exhibits anti-inflammatory effects in both AD and LPS-induced inflammatory model mice. Wang X, Wang L, Yu X, Li Y, Liu Z, Zou Y, Zheng Y, He Z, Wu H. International immunopharmacology (2019) 75: 105770. . **IHC; tested species: mouse**

The presubiculum is preserved from neurodegenerative changes in Alzheimer's disease. Murray CE, Gami-Patel P, Gkanatsiou E, Brinkmalm G, Portelius E, Wirths O, Heywood W, Blennow K, Ghiso J, Holton JL, Mills K, et al. Acta neuropathologica communications (2018) 61: 62. . **IHC-P; tested species: human**

Detection and Quantification of β-Amyloid, Pyroglutamyl Aβ, and Tau in Aged Canines. Schmidt F, Boltze J, Jäger C, Hofmann S, Willems N, Seeger J, Härtig W, Stolzing A. Journal of neuropathology and experimental neurology (2015) 749: 912-23. . **IHC**

Isoglutaminyl cyclase contributes to CCL2-driven neuroinflammation in Alzheimer's disease. Hartlage-Rübsamen M, Wanek A, Meissner J, Morawski M, Schilling S, Jäger C, Kleinschmidt M, Cynis H, Kehlen A, Arendt T, Demuth HU, et al. Acta neuropathologica (2015) 1294: 565-83. . **IHC**

Identification of thyrotropin-releasing hormone as hippocampal glutaminyl cyclase substrate in neurons and reactive astrocytes. Wanek A, Hartlage-Rübsamen M, Höfling C, Kehlen A, Schilling S, Demuth HU, Roßner S. Biochimica et biophysica acta (2015) 18521: 146-55. . **IHC**

I171F AβPP mutation associates with the deposition of oligomeric pyroglutamate amyloid-β and α-synucleinopathy with Lewy bodies. Sieczkowski E, Milenovic I, Venkataramani V, Giera R, Ströbel T, Höftberger R, Liberski PP, Auff E, Wirths O, Bayer TA, Kovacs GG, et al. Journal of Alzheimer's disease : JAD (2015) 441: 103-14. . **IHC-P; tested species: human**

Access the online factsheet including applicable protocols at <https://sysy.com/product/218011> or scan the QR-code.



FAQ - How should I store my antibody?

Shipping Conditions

- All our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled and biotin-labeled antibodies and control proteins** should be stored at 4°C before reconstitution. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C.

Monoclonal Antibodies

- **Ascites and hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.