SYSY Antibodies

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APP

Cat.No. 127 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For **reconstitution** add 50 µl H_2O 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 : 500 up to 1 : 1000 (AP staining) **IP**: not tested yet **ICC**: 1 : 500 **IHC**: 1 : 500 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 2000 **DNA-PAINT**: external data (see remarks)
Immunogen	Synthetic peptide corresponding to AA 756 to 770 from rat APP (UniProt Id: P08592)
Reactivity	Reacts with: rat (P08592), mouse (P12023), chicken, frog, human (P05067). Other species not tested yet.
Specificity	Specific for APP K.O. validated
Matching control	127-0P
Remarks	**DNA-PAINT**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Background

Alzheimer's disease is characterized by the accumulation of β-amyloid peptides in plaques and vessel walls and by the intraneuronal accumulation of paired helical filaments composed of hyperphosphorylated tau.
Amyloid **p**recursor **p**rotein **APP** is part of a super-family of transmembrane and secreted proteins. It appears to have a number of roles, including regulation of haemostasis and mediation of neuroprotection. APP also has metal and heparin-binding properties. Cleavage of amyloid precursor protein by β- and γ-secretases results in the generation of the Aβ (βA4)peptide, whereas α-secretase cleaves within the Aβ sequence and prevents formation from APP.
Recent findings indicate that the site of γ-secretase cleavage is critical to the development of amyloid deposits. Aβ1-42 is much more amyloidogenic than Aβ1-40. Aβ1-42 formation is favoured by mutations in the two presenilin genes (PS1 and PS2), and by the commonest amyloid precursor protein mutations.

Selected References for 127 003

Amyloid precursor protein is trafficked and secreted via synaptic vesicles.
Groemer TW, Thiel CS, Holt M, Riedel D, Hua Y, Hüve J, Wilhelm BG, Klingauf J
PloS one (2011) 64: e18754. . **WB, ICC, EM**

Myelin dysfunction drives amyloid-β deposition in models of Alzheimer's disease.
Depp C, Sun T, Sasmita AO, Spieth L, Berghoff SA, Nazarenko T, Overhoff K, Steixner-Kumar AA, Subramanian S, Arinrad S, Ruhwedel T, et al.
Nature (2023) 6187964: 349-357. . **WB, IHC; tested species: mouse**

The amyloid precursor protein is a conserved Wnt receptor.
Liu T, Zhang T, Nicolas M, Boussicault L, Rice H, Soldano A, Claeys A, Petrova I, Fradkin L, De Strooper B, Potier MC, et al.
eLife (2021) 10: . . **WB, ICC; tested species: mouse**

Spatial proteomics in neurons at single-protein resolution.
Unterauer EM, Shetab Boushehri S, Jevdokimenko K, Masullo LA, Ganji M, Sograte-Idrissi S, Kowalewski R, Strauss S, Reinhardt SCM, Perovic A, Marr C, et al.
Cell (2024) 1877: 1785-1800.e16. . **DNA_PAINT; tested species: rat**

The metalloprotease ADAMTS4 generates N-truncated Aβ4-x species and marks oligodendrocytes as a source of amyloidogenic peptides in Alzheimer's disease.
Walter S, Jumpertz T, Hüttenrauch M, Ogorek I, Gerber H, Storck SE, Zampar S, Dimitrov M, Lehmann S, Lepka K, Berndt C, et al.
Acta neuropathologica (2018) : . . **IHC-P; tested species: mouse**

Oligodendrocytes produce amyloid-β and contribute to plaque formation alongside neurons in Alzheimer's disease model mice.
Sasmita AO, Depp C, Nazarenko T, Sun T, Siems SB, Ong EC, Nkeh YB, Böhler C, Yu X, Bues B, Evangelista L, et al.
Nature neuroscience (2024) : . . **WB; tested species: mouse**

Surface Trafficking of APP and BACE in Live Cells.
Bauereiss A, Welzel O, Jung J, Grosse-Holz S, Lelental N, Lewczuk P, Wenzel EM, Kornhuber J, Groemer TW
Traffic (Copenhagen, Denmark) (2015) 166: 655-75. . **ICC**

Transformation of diffuse beta-amyloid precursor protein and beta-amyloid deposits to plaques in the thalamus after transient occlusion of the middle cerebral artery in rats.
van Groen T, Puurunen K, Mäki HM, Sivenius J, Jolkkonen J
Stroke (2005) 367: 1551-6. . **IHC; tested species: rat**

Selected General References

The amyloid precursor protein of Alzheimer's disease and the Abeta peptide.
Storey E et al. Neuropathol. Appl. Neurobiol. (1999) PubMed:10215996

Access the online factsheet including applicable protocols at https://sysy.com/product/127003 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable 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. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.