SYSY Antibodies

Rudolf-Wissell-Str. 28a
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

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**: 1 : 2000 **DNA-PAINT**: yes (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 used for DNA-PAINT application (see Unterauer et al., 2024; PMID: 38552614).

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 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 a 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.