Synaptic Systems

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AP 180

Cat.No. 155 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°C until use. For detailed information, see back of the data sheet.
Applications	**WB**: 1 : 1000 up to 1 : 5000 (AP staining) **IP**: not tested yet **ICC**: not recommended (see remarks) **IHC**: not recommended **IHC-P/FFPE**: not tested yet
Immunogen	Synthetic peptide corresponding to AA 279 to 297 from rat AP180 (UniProt Id: Q05140)
Reactivity	Reacts with: human (O60641), rat (Q05140), mouse (Q61548), dog. Other species not tested yet.
Specificity	Specific for AP 180.
Matching control	155-0P
Remarks	**ICC**: The affinity-purified antibody (cat. no. 155 003) is recommended.

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

Access the online factsheet including applicable protocols at https://sysy.com/product/155002 or scan the QR-code.

Background

During neurotransmitter release synaptic vesicles fuse with the presynaptic plasma membrane. A whole protein machinery consisting of e.g. amphiphysin, clathrin, endophilin and synaptojanin is involved in the subsequent endocytotic recycling of the synaptic vesicles.
AP 180 also known as **pp155**, **NP185**, **F1-20**, and **SNAP 91** is a clathrin binding phospho-protein and faciliates the formation of clathrin coats.

Selected References for 155 002

Clathrin coat controls synaptic vesicle acidification by blocking vacuolar ATPase activity.
Farsi Z, Gowrisankaran S, Krunic M, Rammner B, Woehler A, Lafer EM, Mim C, Jahn R, Milosevic I
eLife (2018) 7: . . **WB; tested species: mouse**

Endophilin-A coordinates priming and fusion of neurosecretory vesicles via intersectin.
Gowrisankaran S, Houy S, Del Castillo JGP, Steubler V, Gelker M, Kroll J, Pinheiro PS, Schwitters D, Halbsgut N, Pechstein A, van Weering JRT, et al.
Nature communications (2020) 111: 1266. . **WB; tested species: mouse**

CSPα knockout causes neurodegeneration by impairing SNAP-25 function.
Sharma M, Burré J, Bronk P, Zhang Y, Xu W, Südhof TC
The EMBO journal (2012) 314: 829-41. . **WB; tested species: mouse**

Endosomal sorting of readily releasable synaptic vesicles.
Hoopmann P, Punge A, Barysch SV, Westphal V, Bückers J, Opazo F, Bethani I, Lauterbach MA, Hell SW, Rizzoli SO
Proceedings of the National Academy of Sciences of the United States of America (2010) 10744: 19055-60. .

Selected General References

AP180 maintains the distribution of synaptic and vesicle proteins in the nerve terminal and indirectly regulates the efficacy of Ca2+-triggered exocytosis.
Bao H, Daniels RW, MacLeod GT, Charlton MP, Atwood HL, Zhang B
Journal of neurophysiology (2005) 943: 1888-903. .

Synaptic distribution of the endocytic accessory proteins AP180 and CALM.
Yao PJ, Petralia RS, Bushlin I, Wang Y, Furukawa K
The Journal of comparative neurology (2005) 4811: 58-69. .

High-resolution localization of clathrin assembly protein AP180 in the presynaptic terminals of mammalian neurons.
Yao PJ, Coleman PD, Calkins DJ
The Journal of comparative neurology (2002) 4472: 152-62. .

Unusual structural organization of the endocytic proteins AP180 and epsin 1.
Kalthoff C, Alves J, Urbanke C, Knorr R, Ungewickell EJ
The Journal of biological chemistry (2002) 27710: 8209-16. .

Changes in synaptic expression of clathrin assembly protein AP180 in Alzheimer's disease analysed by immunohistochemistry.
Yao PJ, Morsch R, Callahan LM, Coleman PD
Neuroscience (1999) 942: 389-94. .

AP180 and AP-2 interact directly in a complex that cooperatively assembles clathrin.
Hao W, Luo Z, Zheng L, Prasad K, Lafer EM
The Journal of biological chemistry (1999) 27432: 22785-94. .

Clathrin assembly protein AP180: primary structure, domain organization and identification of a clathrin binding site.
Morris SA, Schröder S, Plessmann U, Weber K, Ungewickell E
The EMBO journal (1993) 122: 667-75. .

Molecular characterization of the AP180 coated vesicle assembly protein.
Prasad K, Lippoldt RE
Biochemistry (1988) 2716: 6098-104. .

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 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.