

## VAMP4

Cat.No. 136 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

### Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For <b>reconstitution</b> add 200 µl H <sub>2</sub> O, then aliquot and store at -20°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	<b>WB:</b> 1 : 100 up to 1 : 1000 (AP staining) <b>IP:</b> yes <b>ICC:</b> 1 : 100 up to 1 : 500 <b>IHC:</b> yes <b>IHC-P:</b> not tested yet
Immunogen	Recombinant protein corresponding to AA 1 to 117 from rat VAMP4 (UniProt Id: D4A560)
Reactivity	Reacts with: human (O75379), rat (D4A560), hamster, zebrafish. Other species not tested yet.
Specificity	K.O. validated PubMed: <a href="https://pubmed.ncbi.nlm.nih.gov/33931449/">33931449</a>

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

### Background

**VAMP 4** belongs to the family of **vesicle-associated membrane proteins** and has a size of 16.5 kDa. It is involved in trans-Golgi network trafficking and the maturation of secretory granules. VAMP 4 co-immunoprecipitates with syntaxin 6, syntaxin 16, vti1a and vti1b. The highest expression levels are observed in brain but considerable amounts are also detectable in other tissues like heart, spleen and lung. In liver an additional splice variant of approximately 25 kDa has been described.

### Selected References for 136 002

- VAMP4 directs synaptic vesicles to a pool that selectively maintains asynchronous neurotransmission. Raingo J, Khvotchev M, Liu P, Darios F, Li YC, Ramirez DM, Adachi M, Lemieux P, Toth K, Davletov B, Kavalali ET, et al. *Nature neuroscience* (2012) 155: 738-45. . **WB, ICC, IHC**
- The vSNAREs VAMP2 and VAMP4 control recycling and intracellular sorting of post-synaptic receptors in neuronal dendrites. Bakr M, Jullié D, Krapivkina J, Paget-Blanc V, Bouit L, Petersen JD, Retailliau N, Breillat C, Herzog E, Choquet D, Perrais D, et al. *Cell reports* (2021) 3610: 109678. . **WB, ICC, EM; KD verified; tested species: rat**
- Composition of isolated synaptic boutons reveals the amounts of vesicle trafficking proteins. Wilhelm BG, Mandad S, Truckenbrodt S, Kröhnert K, Schäfer C, Rammner B, Koo SJ, Claßen GA, Krauss M, Haucke V, Urlaub H, et al. *Science (New York, N.Y.)* (2014) 3446187: 1023-8. . **WB, ICC, IHC; tested species: mouse, rat**
- Control of synaptic vesicle release probability via VAMP4 targeting to endolysosomes. Ivanova D, Dobson KL, Gajbhiye A, Davenport EC, Hacker D, Ultanir SK, Trost M, Cousin MA. *Science advances* (2021) 718: . . **ICC, IHC; KO verified; tested species: mouse**
- β1-integrin- and KV1.3 channel-dependent signaling stimulates glutamate release from Th17 cells. Birkner K, Wasser B, Ruck T, Thalman C, Luchtman D, Pape K, Schmaul S, Bitar L, Krämer-Albers EM, Stroh A, Meuth SG, et al. *The Journal of clinical investigation* (2019) : . . **WB, ICC; tested species: mouse**
- VAMP2 is implicated in the secretion of antibodies by human plasma cells and can be replaced by other synaptobrevins. Gómez-Jaramillo L, Romero-García R, Jiménez-Gómez G, Riegle L, Ramos-Amaya AB, Brieva JA, Kelly-Worden M, Campos-Caro A. *Cellular & molecular immunology* (2018) 154: 353-366. . **WB, ICC; tested species: human**
- Annexin A6 and Late Endosomal Cholesterol Modulate Integrin Recycling and Cell Migration. García-Melero A, Reverter M, Hoque M, Meneses-Salas E, Koese M, Conway JR, Johnsen CH, Alvarez-Guaita A, Morales-Paytuyvi F, Elmaghrabi YA, Pol A, et al. *The Journal of biological chemistry* (2016) 2913: 1320-35. . **WB, ICC**
- Selected SNARE proteins are essential for the polarized membrane insertion of igf-1 receptor and the regulation of initial axonal outgrowth in neurons. Grassi D, Plonka FB, Oksdath M, Guil AN, Sosa LJ, Quiroga S. *Cell discovery* (2015) 1: 15023. . **WB, ICC**
- The COG complex interacts directly with Syntaxin 6 and positively regulates endosome-to-TGN retrograde transport. Laufman O, Hong W, Lev S. *The Journal of cell biology* (2011) 1943: 459-72. . **WB, ICC**
- The regulated exocytosis of enlargeosomes is mediated by a SNARE machinery that includes VAMP4. Cocucci E, Racchetti G, Rupnik M, Meldolesi J. *Journal of cell science* (2008) 121Pt 18: 2983-91. . **WB, ICC**
- Prion protein conversion at two distinct cellular sites precedes fibrillisation. Ribes JM, Patel MP, Halim HA, Berretta A, Tooze SA, Klöhn PC. *Nature communications* (2023) 141: 8354. . **ICC; tested species: mouse**
- Mapping localization of 21 endogenous proteins in the Golgi apparatus of rodent neurons. van Bommel DM, Toonen RF, Verhage M. *Scientific reports* (2023) 131: 2871. . **ICC; tested species: mouse**

Access the online factsheet including applicable protocols at <https://sysy.com/product/136002> 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.