SYSY Antibodies

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Ca2+ channel P/Q-type α-1A

Cat.No. 152 205; Polyclonal Guinea pig 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 : 1000 (AP staining) (see remarks) **IP**: not tested yet **ICC**: not tested yet **IHC**: external data (see remarks) **IHC-P (FFPE)**: not tested yet **ExM**: external data (see remarks) **EM**: external data (see remarks)
Immunogen	Recombinant protein corresponding to AA 1921 to 2212 from rat Ca2+ channel P/Q-type α-1A (Cav2.1) (UniProt Id: P54282)
Reactivity	Reacts with: rat (P54282), mouse (P97445). Other species not tested yet.
Remarks	**WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE. Due to the large size of this protein, we recommend NuPAGE 3-8% Tris-Acetate gels for SDS-PAGE. **IHC**: This antibody has been successfully applied for this method by our customers using mild fixation (2% PFA at pH 6) according to Lorincz and Nusser 2010 (see gallery). It has not been validated using our standard protocol. **ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **EM**: 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

Voltage **g**ated **c**alcium **c**hannels (VGCCs), also referred to as voltage sensitive calcium channels (VSCCs), are present in most excitable cells. They mediate the influx of Ca^{2+} ions into the cell and trigger the release of neurotransmitters or hormons but are also involved in other calcium dependent processes like metabolism, cell proliferation and cell death.
VGCCs are composed of four subunits (α-1, α-2, β and δ) in a 1:1:1:1 ratio. The α-1A isoform occurs in VGCCs of the **P/Q-type** while isoform α-1B is found in the N-type. Both belong to the high voltage activated group (hva).

Selected References for 152 205

Light-microscopy-based connectomic reconstruction of mammalian brain tissue.
Tavakoli MR, Lyudchik J, Januszewski M, Vistunou V, Agudelo Dueñas N, Vorlaufer J, Sommer C, Kreuzinger C, Oliveira B, Cenameri A, Novarino G, et al.
Nature (2025) 6428067: 398-410. . **EXM**

Development and Optimization of a Multilayer Rat Purkinje Neuron Culture.
Uggerud IM, Kråkenes T, Hirai H, Vedeler CA, Schubert M
Cerebellum (London, England) (2023) : . . **ICC; tested species: rat**

Correct expression and localization of collagen xiii is crucial for the normal formation and function of the neuromuscular system.
Härönen H, Zainul Z, Naumenko N, Sormunen R, Miinalainen I, Shakirzyanova A, Santoleri S, Kemppainen AV, Giniatullin R, Pihlajaniemi T, Heikkinen A, et al.
The European journal of neuroscience (2019) : . . **IHC; tested species: mouse**

Similar GABAA receptor subunit composition in somatic and axon initial segment synapses of hippocampal pyramidal cells.
Kerti-Szigeti K, Nusser Z
eLife (2016) 5: . . **EM**

Presynaptic α2δs specify synaptic gain, not synaptogenesis, in the mammalian brain.
Milanick W, Li J, Thomas CI, Al-Yaari M, Guerrero-Given D, Kamasawa N, Young SM
Neuron (2025) : . . **EM; tested species: mouse**

A transcriptomic atlas of astrocyte heterogeneity across space and time in mouse and marmoset.
Schroeder ME, McCormack DM, Metzner LR, Kang J, Li KX, Yu E, Melamed L, Levandowski KM, Zaniewski H, Zhang Q, Boyden ES, et al.
Neuron (2025) : . . **EXM; tested species: mouse**

Developmental transformation of Ca2+ channel-vesicle nanotopography at a central GABAergic synapse.
Chen JJ, Kaufmann WA, Chen C, Arai I, Kim O, Shigemoto R, Jonas P
Neuron (2024) 1125: 755-771.e9. . **EM; tested species: mouse**

Presynaptic cAMP-PKA-mediated potentiation induces reconfiguration of synaptic vesicle pools and channel-vesicle coupling at hippocampal mossy fiber boutons.
Kim O, Okamoto Y, Kaufmann WA, Brose N, Shigemoto R, Jonas P
PLoS biology (2024) 2211: e3002879. . **EM; tested species: mouse,rat**

Nanoscale Phosphoinositide Distribution on Cell Membranes of Mouse Cerebellar Neurons.
Eguchi K, Le Monnier E, Shigemoto R
The Journal of neuroscience : the official journal of the Society for Neuroscience (2023) 4323: 4197-4216. . **EM; tested species: mouse**

Different priming states of synaptic vesicles underlie distinct release probabilities at hippocampal excitatory synapses.
Aldahabi M, Balint F, Holderith N, Lorincz A, Reva M, Nusser Z
Neuron (2022) : . . **EM; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/152205 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.