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

Ca2+ channel P/Q-type α-1A

Cat.No. 152 203; 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 : 1000 (AP staining) (see remarks) **IP**: not tested yet **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 (see remarks) **IHC-P (FFPE)**: not tested yet **ExM**: external data (see remarks) **DNA-PAINT**: 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.
Specificity	K.O. validated PubMed: 27537483
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**: Antigen retrieval with methanol/acetic acid is required. For details see Dumoulin A, Triller A & Dieudonné S (2001). **ExM**: This antibody has been successfully applied and published for this method by customers (see application-specific references). **DNA-PAINT**: 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 152 203

Developmental regulation of GABAB receptors and downstream molecules in the mouse brain.
Aguado C, Fajardo-Serrano A, Alfaro-Ruiz R, Martínez-Poyato ML, Moreno-Martínez AE, García-Madrona S, Roldán-Sastre A, Alonso-Gómez P, Fernández M, Puertas-Avendaño R, Shigemoto R, et al.
Histology and histopathology (2025) : 18970. . **IHC, EM; tested species: mouse**

α-Neurexins Together with α2δ-1 Auxiliary Subunits Regulate Ca2+ Influx through Cav2.1 Channels.
Brockhaus J, Schreitmüller M, Repetto D, Klatt O, Reissner C, Elmslie K, Heine M, Missler M
The Journal of neuroscience : the official journal of the Society for Neuroscience (2018) 3838: 8277-8294. . **WB, ICC; tested species: mouse**

Molecular definition of distinct active zone protein machineries for Ca2+ channel clustering and synaptic vesicle priming.
Emperador-Melero J, Andersen JW, Metzbower SR, Levy AD, Dharmasri PA, de Nola G, Blanpied TA, Kaeser PS
bioRxiv : the preprint server for biology (2023) : . . **ICC, DNA_PAINT; tested species: mouse**

The intracellular C-terminus confers compartment-specific targeting of voltage-gated calcium channels.
Chin M, Kaeser PS
Cell reports (2024) 437: 114428. . **WB, ICC; KO verified; tested species: mouse**

Distinct active zone protein machineries mediate Ca2+ channel clustering and vesicle priming at hippocampal synapses.
Emperador-Melero J, Andersen JW, Metzbower SR, Levy AD, Dharmasri PA, de Nola G, Blanpied TA, Kaeser PS
Nature neuroscience (2024) 279: 1680-1694. . **DNA_PAINT, ICC; tested species: mouse**

The intracellular C-terminus confers compartment-specific targeting of voltage-gated Ca2+ channels.
Chin M, Kaeser PS
bioRxiv : the preprint server for biology (2023) : . . **WB, ICC; KO verified; tested species: mouse**

PRRT2 modulates presynaptic Ca2+ influx by interacting with P/Q-type channels.
Ferrante D, Sterlini B, Prestigio C, Marte A, Corradi A, Onofri F, Tortarolo G, Vicidomini G, Petretto A, Muià J, Thalhammer A, et al.
Cell reports (2021) 3511: 109248. . **WB, ICC; tested species: mouse**

RIM-BP2 regulates Ca2+ channel abundance and neurotransmitter release at hippocampal mossy fiber terminals.
Miyano R, Sakamoto H, Hirose K, Sakaba T
eLife (2024) 12: . . **IHC_FR; tested species: mouse**

Munc13-1 restoration mitigates presynaptic pathology in spinal muscular atrophy.
Moradi M, Weingart J, Deng C, Nasouti M, Briese M, Jablonka S, Sauer M, Sendtner M
Nature communications (2025) 161: 8724. . **IHC; tested species: mouse**

Loss of synaptic Munc13-1 underlies neurotransmission abnormalities in spinal muscular atrophy.
Moradi M, Deng C, Sendtner M
Cellular and molecular life sciences : CMLS (2025) 821: 325. . **IHC; tested species: mouse**

CACNA1A loss-of-function affects neurogenesis in human iPSC-derived neural models.
Musante I, Cangelosi D, Muzzi L, Jaudon F, Di Duca M, Guerrisi S, Antonini F, De Spelorzi YCC, Cingolani LA, Zara F, Scudieri P, et al.
Cellular and molecular life sciences : CMLS (2025) 821: 234. . **WB; tested species: human**

Access the online factsheet including applicable protocols at https://sysy.com/product/152203 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.