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. 152 103; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was 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 : 5000 **IHC**: not recommended **IHC-P (FFPE)**: not tested yet **IHC-Fr**: 1 : 500 (see remarks)
Immunogen	Recombinant protein corresponding to AA 856 to 888 from mouse Ca2+ channel P/Q-type α-1A (Cav2.1) (UniProt Id: P97445)
Reactivity	Reacts with: rat (P54282), mouse (P97445). Other species not tested yet.
Specificity	K.O. validated PubMed: 22701595
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-Fr**: The following fixatives are possible: 4% formaldehyde/PFA, acetone.

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 152 103

P/Q Type Calcium Channel Cav2.1 Defines a Unique Subset of Glomeruli in the Mouse Olfactory Bulb.
Pyrski M, Tusty M, Eckstein E, Oboti L, Rodriguez-Gil DJ, Greer CA, Zufall F
Frontiers in cellular neuroscience (2018) 12: 295. . **IHC, EM; tested species: mouse**

α2δ expression sets presynaptic calcium channel abundance and release probability.
Hoppa MB, Lana B, Margas W, Dolphin AC, Ryan TA
Nature (2012) 4867401: 122-5. . **ICC**

Delayed postnatal loss of P/Q-type calcium channels recapitulates the absence epilepsy, dyskinesia, and ataxia phenotypes of genomic Cacna1a mutations.
Mark MD, Maejima T, Kuckelsberg D, Yoo JW, Hyde RA, Shah V, Gutierrez D, Moreno RL, Kruse W, Noebels JL, Herlitze S, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2011) 3111: 4311-26. . **WB**

Suggestion of creatine as a new neurotransmitter by approaches ranging from chemical analysis and biochemistry to electrophysiology.
Bian X, Zhu J, Jia X, Liang W, Yu S, Li Z, Zhang W, Rao Y
eLife (2023) 12: . . **WB; tested species: mouse**

Synaptic NMDA receptor signalling controls R-type calcium channel recruitment.
Feng Z, Glebov OO
The European journal of neuroscience (2021) : . . **ICC; tested species: rat**

Rapid purification and metabolomic profiling of synaptic vesicles from mammalian brain.
Chantranupong L, Saulnier JL, Wang W, Jones DR, Pacold ME, Sabatini BL
eLife (2020) 9: . . **WB; tested species: mouse**

Selected Ionotropic Receptors and Voltage-Gated Ion Channels: More Functional Competence for Human Induced Pluripotent Stem Cell (iPSC)-Derived Nociceptors.
Schoepf CL, Zeidler M, Spiecker L, Kern G, Lechner J, Kummer KK, Kress M
Brain sciences (2020) 106: . . **ICC; tested species: human,mouse**

Transient Confinement of CaV2.1 Ca2+-Channel Splice Variants Shapes Synaptic Short-Term Plasticity.
Heck J, Parutto P, Ciuraszkiewicz A, Bikbaev A, Freund R, Mitlöhner J, Alonso M, Fejtova A, Holcman D, Heine M
Neuron (2019) : . . **ICC; tested species: human**

Bicistronic CACNA1A Gene Expression in Neurons Derived from Spinocerebellar Ataxia Type 6 Patient-Induced Pluripotent Stem Cells.
Bavassano C, Eigentler A, Stanika R, Obermair GJ, Boesch S, Dechant G, Nat R
Stem cells and development (2017) 2622: 1612-1625. . **ICC; tested species: human**

Nanoscale Structural Plasticity of the Active Zone Matrix Modulates Presynaptic Function.
Glebov OO, Jackson RE, Winterflood CM, Owen DM, Barker EA, Doherty P, Ewers H, Burrone J
Cell reports (2017) 1811: 2715-2728. . **ICC**

Alternative Splicing of P/Q-Type Ca2+ Channels Shapes Presynaptic Plasticity.
Thalhammer A, Contestabile A, Ermolyuk YS, Ng T, Volynski KE, Soong TW, Goda Y, Cingolani LA
Cell reports (2017) 202: 333-343. . **ICC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/152103 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.