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 N-type α-1B

**Cat.No. 152 311; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)**

## Data Sheet

| | |
|---|---|
| Reconstitution/ Storage | 100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization.<br>For **reconstitution** add 100 µl $H_2O$ to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use.<br>Antibodies should be stored at +4°C when still lyophilized. Do not freeze!<br>For detailed information, see back of the data sheet. |
| Applications | **WB**: 1 : 1000 (AP staining) (see remarks)<br>**IP**: not tested yet<br>**ICC**: external data (see remarks)<br>**IHC**: not tested yet<br>**IHC-P (FFPE)**: not tested yet<br>**IHC-Fr**: external data (see remarks) |
| Clone | 163E3 |
| Subtype | IgG2b (κ light chain) |
| Immunogen | Recombinant protein corresponding to AA 2056 to 2336 from rat Ca2+ channel N-type α-1B (Cav2.2) (UniProt Id: Q02294) |
| Epitop | AA 2074 to 2354 from rat Ca2+ channel N-type α-1B (Cav2.2) (UniProt Id: Q02294) |
| Reactivity | Reacts with: rat (Q02294), mouse.<br>Other species not tested yet. |
| Matching control | 152-3P |
| Remarks | **WB**: To avoid protein aggregation, do not heat samples for SDS-PAGE.<br>Due to the large size of this protein, we recommend NuPAGE 3-8% Tris-Acetate gels for SDS-PAGE.<br>**ICC**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols.<br>**IHC-Fr**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols. |

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

## Background

**V**oltage **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 152 311

CaV2.2 Gates Calcium-Independent but Voltage-Dependent Secretion in Mammalian Sensory Neurons.
Chai Z, Wang C, Huang R, Wang Y, Zhang X, Wu Q, Wang Y, Wu X, Zheng L, Zhang C, Guo W, et al.
Neuron (2017) 966: 1317-1326.e4. . **WB, ICC; tested species: rat**

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**

Developmental refinement of the active zone nanotopography and axon wiring at the somatosensory thalamus.
Midorikawa M, Sakamoto H, Nakamura Y, Hirose K, Miyata M
Cell reports (2024) 4310: 114770. . **IHC_FR; tested species: mouse**

Interactions of Rabconnectin-3 with Cav2 calcium channels.
Gandini MA, Souza IA, Fan J, Li K, Wang D, Zamponi GW
Molecular brain (2019) 121: 62. . **ICC; tested species: mouse**

## Selected General References

Bipartite syntaxin 1A interactions mediate CaV2.2 calcium channel regulation.
Davies JN et al. Biochem. Biophys. Res. Commun. (2011) PubMed:21763275

Presynaptic Cav2.1 and Cav2.2 differentially influence release dynamics at hippocampal excitatory synapses.
Scheuber A et al. J. Neurosci. (2004) PubMed:15548655

Alternative splicing in the voltage-sensing region of N-Type CaV2.2 channels modulates channel kinetics.
Lin Y et al. J. Neurophysiol. (2004) PubMed:15201306

Differential phosphorylation of two size forms of the N-type calcium channel alpha 1 subunit which have different COOH termini.
Hell JW et al. J. Biol. Chem. (1994) PubMed:8125957

Molecular cloning of the alpha-1 subunit of an omega-conotoxin-sensitive calcium channel.
Dubel SJ et al. Proc. Natl. Acad. Sci. U.S.A. (1992) PubMed:1317580

Rat brain expresses a heterogeneous family of calcium channels.
Snutch TP et al. Proc. Natl. Acad. Sci. U.S.A. (1990) PubMed:1692134

Access the online factsheet including applicable protocols at https://sysy.com/product/152311 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.