

## Ca<sup>2+</sup> channel N-type $\alpha$ -1B

Cat.No. 152 311; Monoclonal mouse antibody, 100  $\mu$ g purified IgG (lyophilized)

### Data Sheet

Reconstitution/Storage	100 $\mu$ g purified IgG, lyophilized. Azide was added before lyophilization. For <b>reconstitution</b> add 100 $\mu$ l H <sub>2</sub> O 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	<b>WB:</b> 1 : 1000 (AP staining) (see remarks) <b>IP:</b> not tested yet <b>ICC:</b> not tested yet <b>IHC:</b> not tested yet <b>IHC_P:</b> not tested yet
Clone	163E3
Subtype	IgG2b ( $\kappa$ light chain)
Immunogen	Recombinant protein corresponding to AA 2056 to 2336 from rat Ca <sup>2+</sup> channel N-type $\alpha$ -1B (Cav2.2) (UniProt Id: Q02294)
Epitop	Epitop: AA 2074 to 2354 from rat Ca <sup>2+</sup> channel N-type $\alpha$ -1B (Cav2.2) (UniProt Id: Q02294)
Reactivity	Reacts with: rat (Q02294), mouse. Other species not tested yet.
Matching control	152-3P
Remarks	<b>WB:</b> Due to its large size, this antibody requires special gel-electrophoresis and Western blot protocols for visualization by immunoblotting. Excellent results can be obtained with the 4-12% TRIS-glycine gradient gels of anamed or NuPage TRIS-acetate gels from Invitrogen. Ca <sup>2+</sup> channel N-type $\alpha$ -1B aggregates after boiling, making it necessary to run SDS-PAGE with non-boiled samples.

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

### Background

**Voltage gated calcium channels (VGCCs)**, also referred to as voltage sensitive calcium channels (VSCCs), are present in most excitable cells. They mediate the influx of Ca<sup>2+</sup> ions into the cell and trigger the release of neurotransmitters or hormones but are also involved in other calcium dependent processes like metabolism, cell proliferation and cell death. VGCCs are composed of four subunits ( $\alpha$ -1,  $\alpha$ -2,  $\beta$  and  $\delta$ ) in a 1:1:1:1 ratio. The  $\alpha$ -1A isoform occurs in VGCCs of the P/Q-type while isoform  $\alpha$ -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 Ca<sup>2+</sup> 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**

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, Jarvis SE, Zamponi GW Biochemical and biophysical research communications (2011) 4113: 562-8. .

Presynaptic Cav2.1 and Cav2.2 differentially influence release dynamics at hippocampal excitatory synapses. Scheuber A, Miles R, Poncer JC The Journal of neuroscience : the official journal of the Society for Neuroscience (2004) 2446: 10402-9. .

Alternative splicing in the voltage-sensing region of N-Type CaV2.2 channels modulates channel kinetics. Lin Y, McDonough SI, Lipscombe D Journal of neurophysiology (2004) 925: 2820-30. .

Differential phosphorylation of two size forms of the N-type calcium channel alpha 1 subunit which have different COOH termini. Hell JW, Appleyard SM, Yokoyama CT, Warner C, Catterall WA The Journal of biological chemistry (1994) 26910: 7390-6. .

Molecular cloning of the alpha-1 subunit of an omega-conotoxin-sensitive calcium channel. Dubel SJ, Starr TV, Hell J, Ahljanian MK, Enyeart JJ, Catterall WA, Snutch TP Proceedings of the National Academy of Sciences of the United States of America (1992) 8911: 5058-62. .

Rat brain expresses a heterogeneous family of calcium channels. Snutch TP, Leonard JP, Gilbert MM, Lester HA, Davidson N Proceedings of the National Academy of Sciences of the United States of America (1990) 879: 3391-5. .

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 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.