

## Ca<sup>2+</sup> channel T-type $\alpha$ -1G

Cat.No. 152 503; Polyclonal rabbit antibody, 50  $\mu$ g specific antibody (lyophilized)

### Data Sheet

Reconstitution/ Storage	50 $\mu$ g specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was added for stabilization. For <b>reconstitution</b> add 50 $\mu$ 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> 1 : 200 up to 1 : 500 <b>IHC-P:</b> not tested yet
Immunogen	Recombinant protein corresponding to AA 1921 to 2254 from rat Ca <sup>2+</sup> channel T-type $\alpha$ -1G (Cav3.1) (UniProt Id: O54898)
Reactivity	Reacts with: rat (O54898), mouse (Q9WUT2). Other species not tested yet.
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 <a href="#">anamed</a> or NuPage TRIS-acetate gels from Invitrogen. Ca <sup>2+</sup> channel T-type $\alpha$ -1G 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  $\alpha$ -1G isoform occurs in VGCCs of the T-type which belongs to the high voltage activated group (hva).

### Selected References for 152 503

Homeostatic plasticity and burst activity are mediated by hyperpolarization-activated cation currents and T-type calcium channels in neuronal cultures.

Rátkai A, Tárnok K, Aouad HE, Micska B, Schlett K, Szücs A  
Scientific reports (2021) 111: 3236. . **WB; tested species: mouse**

### Selected General References

Lack of Cav3.1 channels causes severe motor coordination defects and an age-dependent cerebellar atrophy in a genetic model of essential tremor.

Chang KY et al. Biochem. Biophys. Res. Commun. (2011) PubMed:21621520

Permeation and gating in Cav3.1 (alpha1G) T-type calcium channels effects of Ca<sup>2+</sup>, Ba<sup>2+</sup>, Mg<sup>2+</sup>, and Na<sup>+</sup>.

Khan N et al. J. Gen. Physiol. (2008) PubMed:18663131

Subtype switching of T-type Ca<sup>2+</sup> channels from Cav3.2 to Cav3.1 during differentiation of embryonic stem cells to cardiac cell lineage.

Mizuta E et al. Circ. J. (2005) PubMed:16195632

Roles of molecular regions in determining differences between voltage dependence of activation of Cav3.1 and Cav1.2 calcium channels.

Li J et al. J. Biol. Chem. (2004) PubMed:15100229

Immunological characterization of T-type voltage-dependent calcium channel Cav3.1 (alpha 1G) and Cav3.3 (alpha 1I) isoforms reveal differences in their localization, expression, and neural development.

Yunker AM et al. Neuroscience (2003) PubMed:12614673

Gating of the expressed Cav3.1 calcium channel.

Lacinová L et al. FEBS Lett. (2002) PubMed:12417318

Access the online factsheet including applicable protocols at <https://sysy.com/product/152503> 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.