

## $\alpha$ N-Catenin

Cat.No. 281 103; 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) <b>IP:</b> not tested yet <b>ICC:</b> 1 : 1000 <b>IHC:</b> 1 : 500 <b>IHC-P:</b> not tested yet
Immunogen	Synthetic peptide corresponding to AA 921 to 939 from mouse $\alpha$ N-catenin (UniProt Id: Q61301)
Reactivity	Reacts with: human (P26232), rat, mouse (Q61301). Other species not tested yet.
Specificity	Recognizes all isoforms of $\alpha$ -N-catenin. The antibody may cross-react to $\alpha$ -E-catenin due to 53 % sequence identity of the corresponding peptide sequences.

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

## Background

$\alpha$ ,  $\beta$  and  $\gamma$ -**catenin** are intracellular proteins that link cadherins to the actin cytoskeleton. Cadherins are cell-surface proteins that are involved in cell-cell adhesion.  $\alpha$ -N-catenin is expressed mainly in the nervous system. It is a cytoplasmic protein that interacts with N-cadherin and functions in cell-cell adhesion. It is a regulator for the stability of synaptic contacts and is important for cerebellar and hippocampal lamination. There are two isoforms which are differentially expressed during development. The major part of  $\beta$ -catenin localizes to the cell membrane and is part of E-cadherin/catenin adhesion complexes.

## Selected General References

- Axonal translation of  $\beta$ -catenin regulates synaptic vesicle dynamics.  
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- $\beta$ -Catenin gain of function in muscles impairs neuromuscular junction formation.  
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- Regulation of classical cadherin membrane expression and F-actin assembly by alpha-catenins, during Xenopus embryogenesis.  
Nandadasa S et al. PLoS ONE (2012) PubMed:22719936
- A role for primary cilia in glutamatergic synaptic integration of adult-born neurons.  
Kumamoto N et al. Nat. Neurosci. (2012) PubMed:22306608
- Stability of dendritic spines and synaptic contacts is controlled by alpha N-catenin.  
Abe K et al. Nat. Neurosci. (2004) PubMed:15034585
- Deletion in *Catn2*, encoding alpha N-catenin, causes cerebellar and hippocampal lamination defects and impaired startle modulation.  
Park C et al. Nat. Genet. (2002) PubMed:12089526
- N-cadherin redistribution during synaptogenesis in hippocampal neurons.  
Benson DL et al. J. Neurosci. (1998) PubMed:9712659
- Alpha N-catenin expression in the normal and regenerating chick sciatic nerve.  
Shibuya Y et al. J. Neurocytol. (1996) PubMed:9013423
- Interaction of alpha-actinin with the cadherin/catenin cell-cell adhesion complex via alpha-catenin.  
Knudsen KA et al. J. Cell Biol. (1995) PubMed:7790378
- Wnt-1 modulates cell-cell adhesion in mammalian cells by stabilizing beta-catenin binding to the cell adhesion protein cadherin.  
Hinck L et al. J. Cell Biol. (1994) PubMed:8120095
- Mouse alpha N-catenin: two isoforms, specific expression in the nervous system, and chromosomal localization of the gene.  
Uchida N et al. Dev. Biol. (1994) PubMed:8174789
- The vertebrate adhesive junction proteins beta-catenin and plakoglobin and the Drosophila segment polarity gene armadillo form a multigene family with similar properties.  
Peifer M et al. J. Cell Biol. (1992) PubMed:1639851
- Identification of a neural alpha-catenin as a key regulator of cadherin function and multicellular organization.  
Hirano S et al. Cell (1992) PubMed:1638632
- Transmembrane control of cadherin-mediated cell adhesion: a 94 kDa protein functionally associated with a specific region of the cytoplasmic domain of E-cadherin.  
Nagafuchi A et al. Cell Regul. (1989) PubMed:2519616

Access the online factsheet including applicable protocols at <https://sysy.com/product/281103> 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.