SYSY Antibodies

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β-Catenin

Cat.No. 281-0P; control peptide, 100 µg peptide (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg peptide, lyophilized. 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. Control peptides should be stored at -20°C when still lyophilized! For detailed information, see back of the data sheet.
Immunogen	Synthetic peptide corresponding to AA 768 to 782 from mouse β-Catenin (UniProt Id: Q02248)
Recommended dilution	Optimal concentrations should be determined by the end-user.
Matching antibodies	281 003, 281 004
Remarks	This control peptide consists of the synthetic peptide (aa 768 - 782 of mouse β-catenin) that has been used for immunization. It has been tested in preadsorption experiments and blocks efficiently and specifically the corresponding signal in Western blots. The amount of peptide needed for efficient blocking depends on the titer and on the affinity of the antibody to the antigen.

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

Background

α, **β** and γ-**catenin** are intracellular proteins that link cadherins to the actin cytosceleton. Cadherins are cell-surface proteins that are involved in cell-cell adhesion.
α-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 β-catenin localizes to the cell membrane and is part of E-cadherin/catenin adhesion complexes.

Selected General References

Axonal translation of β-catenin regulates synaptic vesicle dynamics.
Taylor AM et al. J. Neurosci. (2013) PubMed:23536073

β-Catenin gain of function in muscles impairs neuromuscular junction formation.
Wu H et al. Development (2012) PubMed:22627288

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 Catna2, 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/281-0P 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.