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

N-Cadherin (CD325)

Cat.No. 363 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was added for stabilization. For **reconstitution** add 50 µl H_2O 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	**WB**: 1 : 1000 (AP staining) **IP**: yes **ICC**: 1 : 500 up to 1 : 1000 **IHC**: external data (see remarks) **IHC-P (FFPE)**: 1 : 500 up to 1 : 1000
Immunogen	Recombinant protein corresponding to AA 746 to 906 from mouse N-Cadherin (UniProt Id: P15116)
Reactivity	Reacts with: rat (Q9Z1Y3), mouse (P15116), human (P19022). Other species not tested yet.
Specificity	Recognizes N-cadherin. The antibody may crossreact to other cadherins due to sequence homology.
Remarks	**IHC**: This antibody has been successfully applied for this method by our customers using mild fixation (4% PFA and 15% picric acid) according to Kirizs et al. 2014 (see gallery). It has not been validated using our standard protocol.

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

Background

N-Cadherin or **neural cadherin** also known as **Cadherin 2 (CDH 2)** or NCAD is a type-I classical cadherin, along with E-Cadherin, P-Cadherin, R-Cadherin, and M-Cadherin. This transmembrane protein plays a crucial role in calcium-dependent cell-cell adhesion. In an anti-parallel conformation, its extracellular region interacts with another N-Cadherin molecule on an adjacent cell, forming a linear adhesive "zipper" through repeated dimer interfaces. Its C-terminal, cytoplasmic tail binds to catenins, which in turn link to the actin cytoskeleton (1). N-Cadherin is prevalent in non-epithelial tissues and is expressed in different types of cells such as neural cells, endothelial cells, stromal cells and osteoblasts. It plays an important role in renal epithelial integrity and polarity and is expressed in proximal renal tubules (2). Additionally, N-Cadherin plays a key role in reproductive biology (3) and in myocardium (4). In neural tissue, N-Cadherin replaces E-Cadherin during neurulation, forming strong adherens junctions to maintain tissue architecture and regulates proliferation and differentiation of neural progenitor cells. Cleavage of N-Cadherin modulates adult neural stem cell functional quiescence (5).
N-Cadherin serves as an indicator of ongoing epithelial-to-mesenchymal transition (EMT) and its expression has been correlated with the development of various types of carcinomas. It also promotes angiogenesis and the integrity of blood vessels by ensheathing endothelial and mural cells, stabilizing microvessels (6).

Selected References for 363 003

Plk2 promotes synaptic destabilization through disruption of N-cadherin adhesion complexes during homeostatic adaptation to hyperexcitation.
Abdel-Ghani M, Lee Y, Akli LA, Moran M, Schneeweis A, Djemil S, El Choueiry R, Murtadha R, Pak DTS
Journal of neurochemistry (2023) : . . **WB, IP, ICC; tested species: rat**

A High-Resolution Method for Quantitative Molecular Analysis of Functionally Characterized Individual Synapses.
Holderith N, Heredi J, Kis V, Nusser Z
Cell reports (2020) 324: 107968. . **IHC; tested species: rat**

Choroid plexus epithelial cells express the adhesion protein P-cadherin at cell-cell contacts and syntaxin-4 in the luminal membrane domain.
Christensen IB, Mogensen EN, Damkier HH, Praetorius J
American journal of physiology. Cell physiology (2018) 3145: C519-C533. . **IHC-P; tested species: mouse**

Altered Glutaminase 1 Activity During Neurulation and Its Potential Implications in Neural Tube Defects.
Benavides-Rivas C, Tovar LM, Zúñiga N, Pinto-Borguero I, Retamal C, Yévenes GE, Moraga-Cid G, Fuentealba J, Guzmán L, Coddou C, Bascuñán-Godoy L, et al.
Frontiers in pharmacology (2020) 11: 900. . **WB; tested species: frog**

Selected General References

Sequential binding of calcium leads to dimerization in neural cadherin.
Vunnam N et al. Biochemistry (2011) PubMed:21366346

The E-Cadherin and N-Cadherin Switch in Epithelial-to-Mesenchymal Transition: Signaling, Therapeutic Implications, and Challenges.
Loh CY et al. Cells (2019) PubMed:31547193

Immunolocalization of β-catenin, E-cadherin and N-cadherin in neonate and adult rat kidney.
Terada N et al. J Vet Med Sci (2017) PubMed:28993569

Access the online factsheet including applicable protocols at https://sysy.com/product/363003 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.