SYSY Antibodies

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Doublecortin

Cat.No. 326 017; Monoclonal rat antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. 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. 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**: not tested yet **ICC**: 1 : 500 **IHC**: 1 : 500 (see remarks) **IHC-P (FFPE)**: 1 : 500
Clone	SY-179B7
Subtype	IgG2b (κ light chain)
Immunogen	Synthetic peptide corresponding to residues near the carboxy terminus of mouse Doublecortin (UniProt Id: Q6PGI2)
Reactivity	Reacts with: mouse (O88809), rat (Q9ESI7), human (O43602). Other species not tested yet.
Remarks	**IHC**: Antigen retrieval with citrate buffer pH 6 is tolerated.

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

Background

Doublecortin (DCX) is a microtubule-associated protein that plays an important role in neuronal development, migration, and differentiation. It is predominantly expressed in immature neurons and neuronal precursor cells, where it contributes to the organization and stability of microtubules and thereby supports proper neuronal migration during development [1-3]. Moreover, it has been observed in the adult rostral migratory stream (RMS), which contains the neuronal precursors traveling to the olfactory bulb [4]. In addition to its developmental function, DCX is expressed transiently in immature neurons generated during adult neurogenesis. In experimental models, DCX-positive cells are found in neurogenic regions such as the dentate gyrus and subventricular zone, and DCX immunoreactivity decreases as newly generated neurons mature [5,6].
Mutations in the DCX gene cause severe abnormalities of cortical neuronal migration and have been linked to the double cortex syndrome [7].
DCX is widely used as a marker of immature neurons and adult neurogenesis. In the adult hippocampus, DCX-positive cells represent developing neurons at different stages of maturation.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

Selected General References

Doublecortin is a developmentally regulated, microtubule-associated protein expressed in migrating and differentiating neurons.
Francis F et al. Neuron (1999) PubMed:10399932

Doublecortin reinforces microtubules to promote growth cone advance in soft environments.
Dema A et al. Curr Biol (2024) PubMed:39626666

Redirection of doublecortin-positive cell migration by over-expression of the chemokines MCP-1, MIP-1α and GRO-α in the adult rat brain.
Tang SK et al. Neuroscience (2014) PubMed:24361178

Distinct roles of doublecortin modulating the microtubule cytoskeleton.
Moores CA et al. EMBO J. (2006) PubMed:16957770

Variability of doublecortin-associated dendrite maturation in adult hippocampal neurogenesis is independent of the regulation of precursor cell proliferation.
Plümpe T et al. BMC Neurosci (2006) PubMed:17105671

Doublecortin expression levels in adult brain reflect neurogenesis.
Couillard-Despres S et al. Eur J Neurosci (2005) PubMed:15654838

Doublecortin, a brain-specific gene mutated in human X-linked lissencephaly and double cortex syndrome, encodes a putative signaling protein.
Gleeson JG et al. Cell (1998) PubMed:9489700

Access the online factsheet including applicable protocols at https://sysy.com/product/326017 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.