SYSY Antibodies

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Doublecortin

Cat.No. 326 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were 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 : 2000 **IHC**: 1 : 200 up to 1 : 500 **IHC-P (FFPE)**: 1 : 200 up to 1 : 500
Immunogen	Recombinant protein corresponding to AA 271 to 366 from mouse Doublecortin (UniProt Id: Q6PGI2)
Reactivity	Reacts with: rat (Q9ESI7), mouse (Q6PGI2), human (O43602). Other species not tested yet.

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 References for 326 003

Generation of iPSC-derived human forebrain organoids assembling bilateral eye primordia.
Gabriel E, Albanna W, Pasquini G, Ramani A, Josipovic N, Mariappan A, Riparbelli MG, Callaini G, Karch CM, Goureau O, Papantonis A, et al.
Nature protocols (2023) 186: 1893-1929. . **ICC; tested species: human**

Recent Zika Virus Isolates Induce Premature Differentiation of Neural Progenitors in Human Brain Organoids.
Gabriel E, Ramani A, Karow U, Gottardo M, Natarajan K, Gooi LM, Goranci-Buzhala G, Krut O, Peters F, Nikolic M, Kuivanen S, et al.
Cell stem cell (2017) 203: 397-406.e5. . **IHC; tested species: human**

Chronic exposure to a synthetic cannabinoid improves cognition and increases locomotor activity in Tg4-42 Alzheimer's disease mice.
Ott FW, Sichler ME, Bouter C, Enayati M, Wiltfang J, Bayer TA, Beindorff N, Löw MJ, Bouter Y
Journal of Alzheimer's disease reports (2025) 9: 25424823241306770. . **IHC; tested species: mouse**

Toxoplasma gondii infection and chronic IL-1 elevation drive hippocampal DNA double-strand break signaling, leading to cognitive deficits.
Belloy M, Schmitt BAM, Marty FH, Paut C, Bassot E, Aïda A, Alis M, Zahm M, Chaubet A, Garnier H, Flores-Aguilar T, et al.
Nature neuroscience (2025) : . . **IHC; tested species: mouse**

Spatiotemporal Mapping and Molecular Basis of Whole-brain Circuit Maturation.
Xue J, Brawner AT, Thompson JR, Yelhekar TD, Newmaster KT, Qiu Q, Cooper YA, Yu CR, Ahmed-Braima YH, Kim Y, Lin Y, et al.
bioRxiv : the preprint server for biology (2024) : . . **IHC; tested species: mouse**

The Preventive Effect of Exercise and Oral Branched-Chain Amino Acid Supplementation on Obesity-Induced Brain Changes in Ldlr-/-.Leiden Mice.
Lohkamp KJ, van den Hoek AM, Solé-Guardia G, Lisovets M, Alves Hoffmann T, Velanaki K, Geenen B, Verweij V, Morrison MC, Kleemann R, Wiesmann M, et al.
Nutrients (2023) 157: . . **IHC; tested species: mouse**

Prolonged fixation and post-mortem delay impede the study of adult neurogenesis in mice.
Gallardo-Caballero M, Rodríguez-Moreno CB, Álvarez-Méndez L, Terreros-Roncal J, Flor-García M, Moreno-Jiménez EP, Rábano A, Llorens-Martín M
Communications biology (2023) 61: 978. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/326003 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.