SYSY Antibodies

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DOPA decarboxylase

Cat.No. 369 003; 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**: not tested yet **ICC**: not tested yet **IHC**: 1 : 500 up to 1 : 5000 **IHC-P**: 1 : 500 up to 1 : 5000
Immunogen	Recombinant protein corresponding to AA 1 to 480 from mouse DDC (UniProt Id: O88533)
Reactivity	Reacts with: rat (P14173), mouse (O88533). Other species not tested yet.

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

Background

DOPA decarboxylase, also referred to as **aromatic L-amino acid decarboxylase**, **AADC** or **DDC**, is the second enzyme in the biosynthesis of dopamine and serotonin. In addition, it is responsible for the synthesis of the trace amines phenylethylamine, p-tyramine, and tryptamine, which are considered to act as neuromodulators.
DDC is expressed in the central nervous system, but has also been detected in several tissues such as liver, kidney, small intestine, adrenal gland and blood vessels.
The inhibition of DDC is used for the treatment of Parkinson's disease.

Selected References for 369 003

Mutations in Parkinsonism-linked endocytic proteins synaptojanin1 and auxilin have synergistic effects on dopaminergic axonal pathology.
Ng XY, Wu Y, Lin Y, Yaqoob SM, Greene LE, De Camilli P, Cao M
NPJ Parkinson's disease (2023) 91: 26. . **WB, IHC; tested species: mouse**

Central biogenic amine deficiency with concomitant exploratory behavioral deficits in Dnajc12 knock-out mice.
Deng IB, Follett J, Fox JD, Wall S, Farrer MJ
NPJ Parkinson's disease (2025) 111: 143. . **WB; tested species: mouse**

β-synuclein potentiates synaptic vesicle dopamine uptake and rescues dopaminergic neurons from MPTP-induced death in the absence of other synucleins.
Ninkina N, Millership SJ, Peters OM, Connor-Robson N, Chaprov K, Kopylov AT, Montoya A, Kramer H, Withers DJ, Buchman VL
The Journal of biological chemistry (2021) : 101375. . **WB; tested species: mouse**

Loss of PTEN-induced kinase 1 (Pink1) reduces hippocampal tyrosine hydroxylase and impairs learning and memory.
Maynard ME, Redell JB, Kobori N, Underwood EL, Fischer TD, Hood KN, LaRoche V, Waxham MN, Moore AN, Dash PK
Experimental neurology (2019) 323: 113081. . **WB; tested species: mouse**

Selected General References

Marked disparity between age-related changes in dopamine and other presynaptic dopaminergic markers in human striatum.
Haycock JW et al. J. Neurochem. (2003) PubMed:14535941

Structural insight into Parkinson's disease treatment from drug-inhibited DOPA decarboxylase.
Burkhard P et al. Nat. Struct. Biol. (2001) PubMed:11685243

Aromatic L-amino acid decarboxylase: a neglected and misunderstood enzyme.
Berry MD et al. Neurochem. Res. (1996) PubMed:8897471

Functionally important residues of aromatic L-amino acid decarboxylase probed by sequence alignment and site-directed mutagenesis.
Ishii S et al. J. Biochem. (1996) PubMed:8889823

Distinct promoters direct neuronal and nonneuronal expression of rat aromatic L-amino acid decarboxylase.
Albert VR et al. Proc. Natl. Acad. Sci. U.S.A. (1992) PubMed:1465439

Aromatic L-amino acid decarboxylase in the rat brain: immunocytochemical localization in neurons of the brain stem.
Jaeger CB et al. Neuroscience (1984) PubMed:6371583

Access the online factsheet including applicable protocols at https://sysy.com/product/369003 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.