SYSY Antibodies

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DAT

Cat.No. 284 011; Monoclonal mouse 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**: not recommended **IP**: not tested yet **ICC**: not tested yet **IHC**: 1 : 500 **IHC-P**: 1 : 200
Clone	SY-219D7
Subtype	IgG2a (λ light chain)
Immunogen	Synthetic peptide corresponding to residues near the amino terminus of rat DAT (UniProt Id: P23977)
Reactivity	Reacts with: mouse (Q01959), rat (P23977). Other species not tested yet.

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

Background

The **d**op**a**mine **t**ransporter (DAT), encoded by the SLC6A3 gene, plays a crucial role in regulating dopaminergic neurotransmission by facilitating the reuptake of dopamine (DA) from the synaptic cleft back into presynaptic neurons (1, 2). Structurally, DAT consists of 12 transmembrane domains with interspersed extracellular and intracellular loops. The N- and C-terminal regions of the protein are intracellular, providing multiple potential phosphorylation sites that regulate its activity (1, 3). Functionally, DAT contributes to the termination of DA signaling by reuptaking DA, thereby controlling both the duration and magnitude of dopaminergic transmission (4). It is predominantly found in dopaminergic neurons and enriched in regions such as the striatum, substantia nigra, and ventral tegmental area, which are associated with motor control and reward mechanisms (5). Alterations in DAT expression have been linked to various neuropsychiatric disorders, including Parkinson's disease and schizophrenia, emphasizing its importance in maintaining dopaminergic homeostasis and neuronal integrity (6, 7).

Selected General References

Hyperlocomotion and indifference to cocaine and amphetamine in mice lacking the dopamine transporter.
Giros B et al. Nature (1996) PubMed:8628395

Dynamic control of the dopamine transporter in neurotransmission and homeostasis.
Bu M et al. NPJ Parkinsons Dis (2021) PubMed:33674612

Striatal presynaptic dopamine in schizophrenia, Part I: meta-analysis of dopamine active transporter (DAT) density.
Fusar-Poli P et al. Schizophr Bull (2013) PubMed:22282456

Neurotransmitter transporters as molecular targets for addictive drugs.
Amara SG et al. Drug Alcohol Depend (1998) PubMed:9716932

Drug abuse: hedonic homeostatic dysregulation.
Koob GF et al. Science (1997) PubMed:9311926

Dopamine transporter immunoreactivity in rat brain.
Freed C et al. J Comp Neurol (1995) PubMed:7499533

Neurotransmitter transporters: recent progress.
Amara SG et al. Annu Rev Neurosci (1993) PubMed:8096377

Access the online factsheet including applicable protocols at https://sysy.com/product/284011 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.