SYSY Antibodies

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Tyrosine hydroxylase

Cat.No. 213 104; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For **reconstitution** add 100 µl H_2O, then aliquot and store at -20°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**: not tested yet **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500
Immunogen	Recombinant protein corresponding to residues near the amino-terminus of rat TyrH. (UniProt Id: P04177)
Reactivity	Reacts with: rat (P04177), mouse (P24529). Other species not tested yet.

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

Background

Tyrosine hydroxylase is one of the key enzymes in the synthesis pathway of catecholamines like adrenalin, noradrenalin and dopamin and is frequently used as a marker for dopaminergic neurons. This neuronal subpopulation is especially affected in Parkinson's disease.

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

Selected References for 213 104

Dopamine Secretion Is Mediated by Sparse Active Zone-like Release Sites.
Liu C, Kershberg L, Wang J, Schneeberger S, Kaeser PS
Cell (2018) 1724: 706-718.e15. . **ICC, IHC; tested species: mouse**

The proteomic landscape of synaptic diversity across brain regions and cell types.
van Oostrum M, Blok TM, Giandomenico SL, Tom Dieck S, Tushev G, Fürst N, Langer JD, Schuman EM
Cell (2023) 18624: 5411-5427.e23. . **IHC, WB; tested species: mouse**

Synaptotagmin-1 is the Ca2+ sensor for fast striatal dopamine release.
Banerjee A, Lee J, Nemcova P, Liu C, Kaeser PS
eLife (2020) 9: . . **ICC, IHC; tested species: mouse**

Multiplex imaging of human induced pluripotent stem cell-derived neurons with CO-Detection by indEXing (CODEX) technology.
Heinrich L, Zafar F, Morato Torres CA, Singh J, Khan A, Chen MY, Hempel C, Nikulina N, Mulholland J, Braubach O, Schüle B, et al.
Journal of neuroscience methods (2022) : 109653. . **CODEX_PC; tested species: human**

Spike-Dependent Dynamic Partitioning of the Locus Coeruleus Network through Noradrenergic Volume Release in a Simulation of the Nucleus Core.
Baral S, Hosseini H, More K, Fabrin TMC, Braun J, Prigge M
Brain sciences (2022) 126: . . **EXM; tested species: mouse**

Dorsal Raphe VIP Neurons Are Critical for Survival-Oriented Vigilance.
Guillaumin A, Perrot E, Dhellemmes T, Boi L, De Castro Medeiros D, Glangetas C, Dumas S, Dovero S, Biendon N, Ladeveze E, Hardel M, et al.
Advanced science (Weinheim, Baden-Wurttemberg, Germany) (2026) : e23809. . **IHC; tested species: mouse,monkey**

KChIP4a is a Biophysical Amplifier of Inhibition in Atypical Dopamine Neurons and Controls Learning from Negative Prediction Errors.
Costa KM, Hammer-Bahador N, Knowlton C, Schwenk J, Müller T, Schulte D, Fakler B, Canavier CC, Roeper J
The Journal of neuroscience : the official journal of the Society for Neuroscience (2026) 4619: . . **IHC; tested species: mouse**

Neuroinflammation causes mitral cell dysfunction and olfactory impairment in a multiple sclerosis model.
Schubert C, Schulz K, Sonner JK, Hadjilaou A, Seemann AL, Gierke J, Vieira V, Meurs N, Woo MS, Lohr C, Morellini F, et al.
Journal of neuroinflammation (2025) 221: 71. . **IHC; tested species: mouse**

Leucine-rich repeat kinase 2 impairs the release sites of Parkinson's disease vulnerable dopamine axons.
Chen C, He Q, Tombesi G, Napier E, Jaconelli M, Moreno-Ramos OA, Serio H, Naaldijk Y, Promes V, Schneeweis A, Quinn K, et al.
bioRxiv : the preprint server for biology (2025) : . . **IHC; tested species: mouse**

Coordinating brain-distributed network activities in memory resistant to extinction.
Clarke-Williams CJ, Lopes-Dos-Santos V, Lefèvre L, Brizee D, Causse AA, Rothaermel R, Hartwich K, Perestenko PV, Toth R, McNamara CG, Sharott A, et al.
Cell (2024) 1872: 409-427.e19. . **IHC; tested species: mouse**

INSIHGT: an accessible multi-scale, multi-modal 3D spatial biology platform.
Yau CN, Hung JTS, Campbell RAA, Wong TCY, Huang B, Wong BTY, Chow NKN, Zhang L, Tsoi EPL, Tan Y, Li JJX, et al.
Nature communications (2024) 151: 10888. . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/213104 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.