

Tyrosine hydroxylase

Cat.No. 213 102; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For reconstitution add 200 µl H ₂ O, 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: 1 : 500 up to 1 : 1000 IHC: 1 : 500 up to 1 : 1000 IHC_P: 1 : 200 up to 1 : 2000
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.

Selected References for 213 102

Synaptic zinc contributes to motor and cognitive deficits in 6-hydroxydopamine mouse models of Parkinson's disease. Sikora J, Kieffer BL, Paoletti P, Ouagazzal AM. *Neurobiology of disease* (2019) 134: 104681. . **WB, IHC; tested species: mouse**

A Functional circuit formed by the autonomic nerves and myofibroblasts controls mammalian alveolar formation for gas exchange.

Zhang K, Yao E, Wang SA, Chuang E, Wong J, Minichiello L, Schroeder A, Eckalbar W, Wolters PJ, Chuang PT. *Developmental cell* (2022) : . . **IHC; tested species: mouse**

Selected General References

Mesencephalic dopamine neuron number and tyrosine hydroxylase content: Genetic control and candidate genes. Vadasz C, Smiley JF, Figarsky K, Saito M, Toth R, Gyetvai BM, Oros M, Kovacs KK, Mohan P, Wang R. *Neuroscience* (2007) 1493: 561-72. .

Tyrosine hydroxylase, the rate-limiting enzyme in catecholamine biosynthesis: discovery of common human genetic variants governing transcription, autonomic activity, and blood pressure in vivo. Rao F, Zhang L, Wessel J, Zhang K, Wen G, Kennedy BP, Rana BK, Das M, Rodriguez-Flores JL, Smith DW, Cadman PE, et al. *Circulation* (2007) 1169: 993-1006. .

Differential regulation of the human tyrosine hydroxylase isoforms via hierarchical phosphorylation. Lehmann IT, Bobrovskaya L, Gordon SL, Dunkley PR, Dickson PW. *The Journal of biological chemistry* (2006) 28126: 17644-51. .

Alpha-synuclein activation of protein phosphatase 2A reduces tyrosine hydroxylase phosphorylation in dopaminergic cells. Peng X, Peng XM, Tehranian R, Dietrich P, Stefanis L, Perez RG. *Journal of cell science* (2005) 118Pt 15: 3523-30. .

Morphology of calretinin and tyrosine hydroxylase-immunoreactive neurons in the pig retina. Jeon YK, Kim SY, Jeon CJ. *Molecules and cells* (2001) 112: 250-6. .

Postmitotic, postmigrational expression of tyrosine hydroxylase in olfactory bulb dopaminergic neurons. McLean JH, Shipley MT. *The Journal of neuroscience : the official journal of the Society for Neuroscience* (1988) 810: 3658-69. .

Increase in rat brain tyrosine hydroxylase activity produced by electroconvulsive shock. Musacchio JM, Julou L, Kety SS, Glowinski J. *Proceedings of the National Academy of Sciences of the United States of America* (1969) 634: 1117-9. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/213102> 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 at 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.