

# PRODUCT INFORMATION



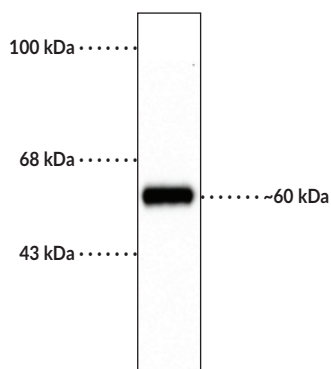
## Tyrosine Hydroxylase (rat, denatured) Polyclonal Antibody

Item No. 10604

### Overview and Properties

<b>Contents:</b>	This vial contains 100 $\mu$ l of affinity-purified polyclonal antibody.
<b>Synonyms:</b>	TH, Tyrosine 3-hydroxylase, Tyrosine 3-monoxygenase
<b>Immunogen:</b>	SDS-denatured rat tyrosine hydroxylase, purified from pheochromocytoma
<b>Species Reactivity:</b>	(+) Human, mouse, rat
<b>Storage:</b>	-20°C (as supplied)
<b>Stability:</b>	$\geq$ 1 year
<b>Storage Buffer:</b>	10 mM HEPES, pH 7.5, with 150 mM sodium chloride, 100 $\mu$ g/ml BSA, and 50% glycerol
<b>Host:</b>	Rabbit
<b>Applications:</b>	Immunocytochemistry (ICC), immunohistochemistry (IHC), and Western blot (WB); the recommended starting dilution for ICC is 1:500-1:1,000 and 1:1,000 for IHC and WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

### Image



WB of 10  $\mu$ g of rat striatal lysate showing specific immunolabeling of the ~60 kDa tyrosine hydroxylase protein.

**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

**WARRANTY AND LIMITATION OF REMEDY**  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

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Tyrosine hydroxylase (TH) catalyzes the conversion of tyrosine to L-DOPA, which is the rate-limiting step in the biosynthesis of the catecholamines dopamine, norepinephrine, and epinephrine.<sup>1</sup> It assembles into tetramers, with each monomer comprised of an N-terminal regulatory domain with three serine residues at positions 19, 31, and 40 that are subject to regulatory phosphorylation, a central catalytic domain, and a C-terminal tetramerization domain. TH is expressed in dopaminergic neurons in the olfactory bulb, diencephalon, substantia nigra, ventral tegmental area, and retinal amacrine cells, adrenergic and noradrenergic cells in the hypothalamus, medulla, and locus coeruleus (LC), as well as sympathetic ganglia and adrenal chromaffin cells. Due to its expression in catecholaminergic neurons, TH has been used as a marker of these cells in the brain.<sup>2</sup> Mutations in *TH* have been found in patients with tyrosine hydroxylase deficiency, infantile parkinsonism, and progressive infantile encephalopathy.<sup>3,4</sup> Cayman's Tyrosine Hydroxylase (rat, denatured) Polyclonal Antibody can be used for immunocytochemistry (ICC), immunohistochemistry (IHC), and Western Blot (WB) applications. The antibody recognizes TH at approximately 60 kDa from mammalian samples.

## References

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1. Tekin, I., Roskoski, R., Jr., Carkaci-Salli, N., *et al.* Complex molecular regulation of tyrosine hydroxylase. *J. Neural Transm. (Vienna)* **121(12)**, 1451-1481 (2014).
2. Berod, A., Hartman, B.K., Keller, A., *et al.* A new double labeling technique using tyrosine hydroxylase and dopamine- $\beta$ -hydroxylase immunohistochemistry: Evidence for dopaminergic cells lying in the pons of the beef brain. *Brain Res.* **240(2)**, 235-243 (1982).
3. Willemsen, M.A., Verbeek, M.M., Kamsteeg, E.-J., *et al.* Tyrosine hydroxylase deficiency: A treatable disorder of brain catecholamine biosynthesis. *Brain* **133(Pt. 6)**, 1810-1822 (2010).
4. White, R.B. and Thomas, M.G. Moving beyond tyrosine hydroxylase to define dopaminergic neurons for use in cell replacement therapies for Parkinson's disease. *CNS Neurol. Disord. Drug Targets* **11(4)**, 340-349 (2012).

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