

Phospho-Ser40 Tyrosine Hydroxylase Antibody
Affinity purified rabbit polyclonal antibody
Catalog # AN1119

Specification

Phospho-Ser40 Tyrosine Hydroxylase Antibody - Product Information

Application	WB, IHC
Primary Accession	P04177
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	polyclonal
Calculated MW	60 KDa

Phospho-Ser40 Tyrosine Hydroxylase Antibody - Additional Information

Gene ID	25085
Gene Name	TH
Other Names	
Tyrosine 3-monooxygenase, Tyrosine 3-hydroxylase, TH, Th	

Target/Specificity

Synthetic phospho-peptide corresponding to amino acid residues surrounding Ser40 conjugated to KLH.

Dilution

WB~~ 1:1000
IHC~~ 1:1000

Format

Prepared from rabbit serum by affinity purification via sequential chromatography on phospho- and dephosphopeptide affinity columns.

Antibody Specificity

Specific for the ~60k tyrosine hydroxylase protein phosphorylated at Ser40. Some higher molecular weight bands may be detected by the antibody depending upon the brain region being studied, protein loads and the detection methods used. The antibody has three orders of magnitude selectivity over dephospho TH.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions

Phospho-Ser40 Tyrosine Hydroxylase Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Shipping

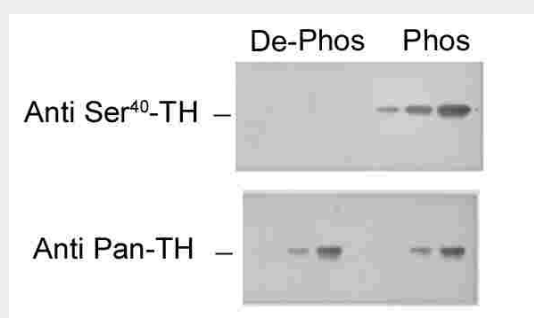
Blue Ice

Phospho-Ser40 Tyrosine Hydroxylase Antibody - Protocols

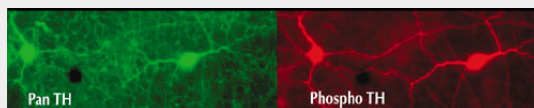
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

Phospho-Ser40 Tyrosine Hydroxylase Antibody - Images



Western blot of recombinant phospho- and dephospho-TH showing selective immunolabeling by the phospho-specific antibody of the ~60k TH phosphorylated at Ser40. The pan-specific antibody (anti-pan-TH) recognized both the phospho- and dephospho-TH while most importantly, the phospho-specific antibody (anti-ser40 TH), recognized only phospho-TH.



Immunohistochemical staining of retina with the pan-tyrosine hydroxylase (pan-TH) and phospho-specific tyrosine hydroxylase (phospho-TH) antibodies. The pan-TH antibody shows extensive labeling in this photomicrograph of the retina. In contrast, the phospho-TH antibody selectively labels only the two amacrine cells in this light-stimulated retina example.

Phospho-Ser40 Tyrosine Hydroxylase Antibody - Background

Tyrosine hydroxylase (TH) is the rate-limiting enzyme in the synthesis of the catecholamines Dopamine and Norepinephrine. TH antibodies can therefore be used as markers for dopaminergic and noradrenergic neurons in a variety of applications including depression, schizophrenia, Parkinson's disease and drug abuse (Kish et al., 2001; Zhu et al., 2000; Zhu et al., 1999). TH antibodies can also be used to explore basic mechanisms of dopamine and norepinephrine signaling (Witkovsky et al., 2000; Salvatore et al., 2001; Dunkley et al., 2004). The activity of TH is also regulated by phosphorylation (Haycock et al., 1982; Haycock et al., 1992; Jedynak et al., 2002). Phospho-specific antibodies for the phosphorylation sites on TH can be used to great effect in studying this regulation and in identifying the cells in which TH phosphorylation occurs.

Phospho-Ser40 Tyrosine Hydroxylase Antibody - References

Dunkley PR, Bobrovskaya L, Graham ME, Von Nagy-Felsobuki EI, Dickson PW (2004) Tyrosine hydroxylase

phosphorylation: regulation and consequences. *J Neurochem* 91:1025-1043. Haycock JW, Ahn NG, Cobb MH, Krebs EG (1992) ERK1 and ERK2, two microtubule-associated protein 2 kinases, mediate the phosphorylation of tyrosine hydroxylase at serine-31 in situ. *Proc Natl Acad Sci (USA)* 89:2365-2369. Haycock JW, Bennett WF, George RJ, Waymire JC (1982) Multiple site phosphorylation of tyrosine hydroxylase.

Differential regulation in situ by a 8-bromo-cAMP and acetylcholine. *J Biol Chem* 257:13699-13703. Jedynek JP, Ali SF, Haycock JW, Hope BT (2002) Acute administration of cocaine regulates the phosphorylation of serine-19,-31 and-40 in tyrosine hydroxylase. *J Neurochem* 82:382-388. Kish SJ, Kalasinsky KS, Derkach P, Schmunk GA, Guttman M, Ang L, Adams V, Furukawa Y, Haycock JW (2001) Striatal dopaminergic and serotonergic markers in human heroin users. *Neuropsychopharmacology* 24:561-567. Salvatore MF, Waymire JC, Haycock JW (2001) Depolarization-stimulated catecholamine biosynthesis: involvement of protein kinases and tyrosine hydroxylase phosphorylation sites in situ. *J Neurochem* 79:349-360. Witkovsky P, Gabriel R, Haycock JW, Meller E (2000) Influence of light and neural circuitry on tyrosine hydroxylase phosphorylation in the rat retina. *J Chem Neuroanat* 19:105-116. Zhu MY, Klimek V, Haycock JW, Ordway GA (2000) Quantitation of tyrosine hydroxylase protein in the locus coeruleus from postmortem human brain. *J Neurosci Meth* 99:37-44. Zhu MY, Klimek V, Dilley GE, Haycock JW, Stockmeier C, Overholser JC, Meltzer HY, Ordway GA (1999) Elevated levels of tyrosine hydroxylase in the locus coeruleus in major depression. *Biol Psychiatry* 46:1275-1286. Douglas A. Meyer, Edmond Richer, Stanley A. Benkovic, Kanehiro Hayashi, Janice W. Kansy, Carly F. Hale, Lily Y. Moy, Yong Kim, James P. O'Callaghan, Li-Huei Tsai, Paul Greengard, Angus C. Nairn, Christopher W. Cowan, Diane B. Miller, Pietro Antich, and James A. Bibb (2008) Striatal dysregulation of Cdk5 alters locomotor responses to cocaine, motor learning, and dendritic morphology. *PNAS*, 105: 18561 - 18566.