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AP05192PU-N Polyclonal Antibody to Tyrosine 3-monooxygenase (TH) pSer40 - Aff - Purified

Alternate names: TYH, Tyrosine 3-hydroxylase

Quantity: 10 Blots

Concentration: Lot specific

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.

Uniprot ID: P07101

NCBI: NP_000351.2

GeneID: 7054

Host / Isotype: Rabbit / IgG

Immunogen: Synthetic phosphopeptide corresponding to amino acid residues surrounding the phospho-Ser40 of rat tyrosine hydroxylase

Format:
State: Liquid purified Ig
Buffer System: HEPES (pH 7.5) solution containing 150 mM NaCl, 100 µg per ml BSA and 50% glycerol

Applications:
Dot Blot: 1:1000.
Western Blot: 1:1000.
Immunofluorescence on frozen sections: 1:1000.
Immunohistochemistry on frozen sections: 1:1000.
Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity:
This antibody reacts to Tyrosine Hydroxylase (pSer40).
Species: Human, Mouse, Rat.
Other species not tested.

Storage:
Ship on dry ice. Store (in aliquots) at -20°C to -70°C.
Avoid repeated freezing and thawing.
Shelf life: one year from despatch.

General Readings:

1. Dunkley PR, Bobrovskaya L, Graham ME, von Nagy-Felsobuki EI, Dickson PW. Tyrosine hydroxylase phosphorylation: regulation and consequences. J Neurochem. 2004 Dec;91(5):1025-43. PubMed PMID: 15569247.
2. Haycock JW, Ahn NG, Cobb MH, Krebs EG. ERK1 and ERK2, two microtubule-associated protein 2 kinases, mediate the phosphorylation of tyrosine hydroxylase at serine-31 in situ. Proc Natl Acad Sci U S A. 1992 Mar 15;89(6):2365-9. PubMed PMID: 1347949.
3. Haycock JW, Bennett WF, George RJ, Waymire JC. Multiple site phosphorylation of tyrosine hydroxylase. Differential regulation in situ by a 8-bromo-cAMP and acetylcholine. J Biol Chem. 1982 Nov 25;257(22):13699-703. PubMed PMID: 6128338.
4. Jedynak JP, Ali SF, Haycock JW, Hope BT. Acute administration of cocaine regulates the phosphorylation of serine-19, -31 and -40 in tyrosine hydroxylase. J Neurochem. 2002 Jul;82(2):382-8. PubMed PMID: 12124439.
5. Kish SJ, Kalasinsky KS, Derkach P, Schmunk GA, Guttman M, Ang L, et al. Striatal dopaminergic and serotonergic markers in human heroin users. Neuropsychopharmacology. 2001 May;24(5):561-7. PubMed PMID: 11282256.
6. Salvatore MF, Waymire JC, Haycock JW. Depolarization-stimulated catecholamine biosynthesis: involvement of protein kinases and tyrosine hydroxylase phosphorylation sites in situ. J Neurochem. 2001 Oct;79(2):349-60. PubMed PMID: 11677263.
7. Witkovsky P, Gabriel R, Haycock JW, Meller E. Influence of light and neural circuitry on tyrosine hydroxylase phosphorylation in the rat retina. J Chem Neuroanat. 2000 Jun;19(2):105-16. PubMed PMID: 10936746.
8. Zhu M, Klimek V, Haycock JW, Ordway GA. Quantitation of tyrosine hydroxylase protein in the locus coeruleus from postmortem human brain. J Neurosci Methods. 2000 Jun 30;99(1-2):37-44. PubMed PMID: 10936640.

Pictures:

Immunohistochemical staining using Ser40 tyrosine hydroxylase antibody on lightstimulated retina.