Rat Phospho-Tyrosine Hydroxylase (S40) Antibody

Antigen Affinity-purified Polyclonal Rabbit IgG
Catalog Number: PPS041

DESCRIPTION

Species Reactivity	Rat
Specificity	This antibody is specific for the 60 kDa TH in Western blots of PC-12 cell lysates. Some higher molecular weight bands may be detected 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.
Source	Polyclonal Rabbit IgG
Purification	Antigen Affinity-purified
Immunogen	Phosphopeptide corresponding to amino acid residues surrounding the phospho-S40 of Tyrosine Hydroxylase
Formulation	100 µL in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 µg/mL BSA and 50% glycerol. See Certificate of Analysis for details.

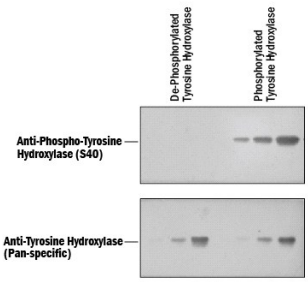
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	1:1000 dilution	See Below
Immunofluorescence	1:1000 dilution	Frozen sections
Immunohistochemistry	1:1000 dilution	Frozen sections

DATA

Western Blot



Detection of Phospho-Tyrosine Hydroxylase (S40) by Western Blot. Western blot of recombinant phospho- and dephosphorylated-Tyrosine Hydroxylase (TH) showing specific immunolabeling of the ~60 kDa TH phosphorylated at S40. The Pan-Specific antibody recognized both the phospho- and dephospho-TH; the phospho-specific antibody recognized only phospho-TH.

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	For long-term storage, ≤ -20° C is recommended. Product is stable at ≤ -20° C for at least 1 year.

BACKGROUND

Rat tyrosine hydroxylase (TH) is a pterin-dependent monooxygenase that catalyzes the hydroxylation of tyrosine to DOPA through the use of a non-heme iron. It is a 55 kDa, 498 amino acid (aa) α-helical protein that runs anomalously at 62 kDa in SDS-page. The molecule contains a 164 aa N-terminal regulatory region and a 334 aa C-terminal catalytic domain. Its activity is regulated at the post-transcriptional level by phosphorylation of serine and feedback by catecholamines. Four serines are known to be phosphorylated at aa positions 8, 19, 31, and 40. Different kinases contribute to different phosphorylation patterns. For example, MAPKAPK-2 and CaMKII act on S19 and S40, PKA phosphorylates only at S40, while Cdk5 phosphorylates S31. Variable site phosphorylations have variable effects. S40 phosphorylation blocks catecholamine feedback inhibition. Subsequent phosphorylations at S19 or S31 likely stabilize an otherwise unstable enzyme phosphorylated only at S40, contributing to increased enzyme activity. Phosphorylation at S8 is likely to be physiologically unimportant.

PRODUCT SPECIFIC NOTICES

1. Grima, B. *et al.* (1985) Proc. Natl. Acad. Sci. USA **82**:617.
2. Frantom, P.A. *et al.* (2006) Biochemistry **45**:2372.
3. Moy, L.Y. and L-H. Tsai (2004) J. Biol. Chem. **279**:54487.
4. Royo, M. *et al.* (2005) Arch. Biochem. Biophys. **434**:266.
5. Witkovsky, P. *et al.* (2000) J. Chem. Neuroanat. **19**:105.

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