Mouse/Rat/Primate Phospho-Tyrosine Hydroxylase (S31) Antibody

Antigen Affinity-purified Polyclonal Rabbit IgG
Catalog Number: PPS088

DESCRIPTION

Species Reactivity	Mouse/Rat/Primate
Specificity	Mouse and rat ~62 kDa Tyrosine Hydroxylase phosphorylated at S31
Source	Polyclonal Rabbit IgG
Purification	Antigen Affinity-purified
Immunogen	Phosphopeptide corresponding to amino acid residues surrounding the phospho-S31 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.

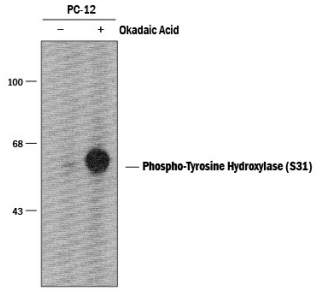
APPLICATIONS

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 (S31) by Western Blot
Western blot of PC-12 cells incubated in the absence (Control) and presence of okadaic acid (OA, 1 µM for 60 minutes) showing specific immunolabeling of the approximately 62 kDa Tyrosine Hydroxylase phosphorylated at S31.

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.

References:

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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