Revision 1

#13041 Store at -20C

# Phospho-Tyrosine Hydroxylase (Ser31) (D6I9V) Rabbit mAb

Cell Signaling TECHNOLOGY®

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| Applications: | Reactivity: | Sensitivity: | MW (kDa): | Source/Isotype: | UniProt ID: | Entrez-Gene Id: |
|---|---|---|---|---|---|---|
| WB, IP, IHC-P | M R | Endogenous | 55-60 | Rabbit IgG | #P04177 | 25085 |

## Product Usage Information

| Application | Dilution |
|---|---|
| Western Blotting | 1:1000 |
| Immunoprecipitation | 1:50 |
| Immunohistochemistry (Paraffin) | 1:1600 |

## Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

## Specificity / Sensitivity

Phospho-Tyrosine Hydroxylase (Ser31) (D6I9V) Rabbit mAb recognizes endogenous levels of tyrosine hydroxylase protein only when phosphorylated at Ser31.

## Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser31 of rat tyrosine hydroxylase protein.

## Background

Tyrosine hydroxylase (TH) catalyzes the rate-limiting step in the synthesis of the neurotransmitter dopamine and other catecholamines. TH functions as a tetramer, with each subunit composed of a regulatory and catalytic domain, and exists in several different isoforms (1,2). This enzyme is required for embryonic development since TH knockout mice die before or at birth (3). Levels of transcription, translation and post-translational modification regulate TH activity. The amino-terminal regulatory domain contains three serine residues: Ser9, Ser31, and Ser40. Phosphorylation at Ser40 by PKA positively regulates the catalytic activity of TH (4-6). Phosphorylation at Ser31 by CDK5 also increases the catalytic activity of TH through stabilization of TH protein levels (7-9).

## Background References

1. Kumer, S.C. and Vrana, K.E. (1996) *J Neurochem* 67, 443-62.
2. Bodeau-Péan, S. et al. (1999) *J Biol Chem* 274, 3469-75.
3. Kobayashi, K. et al. (1995) *J Biol Chem* 270, 27235-43.
4. Lew, J.Y. et al. (1999) *Mol Pharmacol* 55, 202-9.
5. Vié, A. et al. (1999) *J Biol Chem* 274, 16788-95.
6. Lindgren, N. et al. (2000) *J Neurochem* 74, 2470-7.
7. Moy, L.Y. and Tsai, L.H. (2004) *J Biol Chem* 279, 54487-93.
8. Lehmann, I.T. et al. (2006) *J Biol Chem* 281, 17644-51.
9. Saraf, A. et al. (2007) *J Biol Chem* 282, 573-80.

## Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

## Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

## Applications Key

**WB:** Western Blotting **IP:** Immunoprecipitation **IHC-P:** Immunohistochemistry (Paraffin)

## Cross-Reactivity Key

**H:** human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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