

#5659 Store at -20°C

Non-phospho-STEP (Ser221) (D74H3) XP® Rabbit mAb



Cell Signaling
TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP, IF-F	H M R	Endogenous	46, 61	Rabbit IgG	#P54829	84867

Product Usage Information

Application

Western Blotting
Immunoprecipitation
Immunofluorescence (Frozen)

Dilution

1:1000
1:50
1:50

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

Non-phospho-STEP (Ser221) (D74H3) XP® Rabbit mAb detects endogenous levels of STEP61 protein only when dephosphorylated at Ser221 and of STEP46 protein when dephosphorylated at Ser49.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic nonphosphopeptide corresponding to residues surrounding Ser221 of human STEP61 protein.

Background

Striatal enriched phosphatase (STEP, also known as PTPN5), is a protein tyrosine phosphatase expressed in dopaminergic neurons of the central nervous system (1). Alternative splicing produces the cytosolic STEP46 and the membrane-associated STEP61 isoforms of STEP. Dopamine activates D1 receptors and PKA, which in turn phosphorylate both isoforms of STEP. Phosphorylation of STEP61 occurs at Ser160 and Ser221, while STEP46 is phosphorylated at Ser49 (equivalent to Ser221 of STEP61) (2). NMDA-mediated activation of STEP is an important mechanism for regulation of Erk activity in neurons (3). Furthermore, STEP is involved in the regulation of both NMDAR and AMPAR trafficking (4,5). Due to its importance in cognitive function, STEP may play a role in Alzheimer's disease (1). Activity of STEP61 is reduced upon phosphorylation of Ser221 (Ser49 of STEP46) due to lower affinity for its substrates (2).

Background References

1. Braithwaite, S.P. et al. (2006) *Trends Neurosci* 29, 452-8.
2. Paul, S. et al. (2000) *J Neurosci* 20, 5630-8.
3. Paul, S. et al. (2003) *Nat Neurosci* 6, 34-42.
4. Braithwaite, S.P. et al. (2006) *Eur J Neurosci* 23, 2847-56.
5. Zhang, Y. et al. (2008) *J Neurosci* 28, 10561-6.

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 **IF-F:** Immunofluorescence (Frozen)

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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