

#4396 Store at -20°C

## STEP (23E5) Mouse mAb



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| Applications: | Reactivity: | Sensitivity: | MW (kDa): | Source/Isotype: | UniProt ID: | Entrez-Gene Id: |
|---------------|-------------|--------------|-----------|-----------------|-------------|-----------------|
| WB, IP, IF-F  | M R         | Endogenous   | 46, 61    | Mouse IgG1      | #P54829     | 84867           |

### Product Usage Information

| Application                 | Dilution |
|-----------------------------|----------|
| Western Blotting            | 1:1000   |
| Immunoprecipitation         | 1:50     |
| Immunofluorescence (Frozen) | 1:100    |

### 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.

For a carrier free (BSA and azide free) version of this product see product #85453.

### Specificity / Sensitivity

STEP (23E5) Mouse mAb detects endogenous levels of total STEP46 and STEP61 protein.

### Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to the amino terminus of rat STEP46 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).

### 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 nonfat dry milk, 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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