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# STEP Antibody

#4817 Store at -20C

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

<b>Applications:</b> W, IP	<b>Reactivity:</b> M R	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 61	<b>Source/Isotype:</b> Rabbit	<b>UniProt ID:</b> #P54829	<b>Entrez-Gene Id:</b> 84867
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## Product Usage Information

### Application

Western Blotting  
Immunoprecipitation

### Dilution

1:1000  
1:50

## Storage

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

## Specificity/Sensitivity

STEP Antibody detects endogenous levels of total STEP61 and may detect STEP46 protein.

## Species predicted to react based on 100% sequence homology

Human

## Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to human STEP. Antibodies are purified by protein A and peptide affinity chromatography.

## 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 BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

## Applications Key

**W:** Western Blotting **IP:** Immunoprecipitation

## Cross-Reactivity Key

**M:** Mouse **R:** Rat

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