SANTA CRUZ BIOTECHNOLOGY, INC.

STEP (C-12): sc-22986

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

BACKGROUND

The brain-specific STEP (striatal enriched phosphatase) family of protein Tyrosine phosphatases (PTPs) comprises both transmembrane and cytosolic protein members which are the products of alternative splicing. STEP family members are expressed in the dopamin-oceptive neurons of the CNS, with highest expression in the basal ganglia and related structures. The STEP protein regulates the N-methyl-d-aspartate receptor (NMDAR) complex; STEP depresses both NMDAR single-channel activity and synaptic currents. The membrane-associated STEP61 isoform localizes in the postsynaptic densities (PSDs) of striatal neurons. STEP61 contains a single Tyrosine phosphatase domain, two proline-rich domains and two transmembrane domains. The STEP61 protein associates with the Src family kinase member Fyn when Fyn is phosphorylated at Tyr 420 and not Tyr 431. Upon association, STEP61 dephosphorylates Tyr 420 residue and may thus regulate Fyn activity in PSDs. Isolated from mouse brain, the STEP20 isoform lacks the conserved Tyrosine phosphatase domain. The human STEP gene maps to chromosome 11p15.1.

REFERENCES

1. Lombroso, P.J., et al. 1993. A protein Tyrosine phosphatase expressed within dopaminoceptive neurons of the basal ganglia and related structures. J. Neurosci. 13: 3064-3074.
2. Li, X., et al. 1995. Molecular cloning of the human homolog of a striatum-enriched phosphatase (STEP) gene and chromosomal mapping of the human and murine loci. Genomics 28: 442-449.
3. Sharma, E., et al. 1995. Identification of two alternatively spliced transcripts of STEP: a subfamily of brain-enriched protein Tyrosine phosphatases. Brain Res. Mol. Brain Res. 32: 87-93.
4. Bult, A., et al. 1997. STEP: a family of brain-enriched PTPs. Alternative splicing produces transmembrane, cytosolic and truncated isoforms. Eur. J. Cell Biol. 72: 337-344.
5. Paul, S., et al. 2000. The dopamine/D1 receptor mediates the phosphorylation and inactivation of the protein Tyrosine phosphatase STEP via a PKA-dependent pathway. J. Neurosci. 20: 5630-5638.
6. Nguyen, T.H., et al. 2002. Striatal enriched phosphatase 61 dephosphorylates Fyn at phospho Tyrosine 420. J. Biol. Chem. 277: 24274-24279.
7. Pelkey, K.A., et al. 2002. Tyrosine phosphatase STEP is a tonic brake on induction of long-term potentiation. Neuron 34: 127-138.

CHROMOSOMAL LOCATION

Genetic locus: PTPN5 (human) mapping to 11p15.1; Ptpn5 (mouse) mapping to 7 B4.

SOURCE

STEP (C-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of STEP of human origin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22986 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

STEP (C-12) is recommended for detection of STEP of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

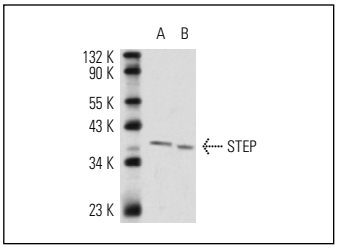
STEP (C-12) is also recommended for detection of STEP in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for STEP siRNA (h): sc-44128, STEP siRNA (m): sc-44480, STEP siRNA (r): sc-270083, STEP shRNA Plasmid (h): sc-44128-SH, STEP shRNA Plasmid (m): sc-44480-SH, STEP shRNA Plasmid (r): sc-270083-SH, STEP shRNA (h) Lentiviral Particles: sc-44128-V, STEP shRNA (m) Lentiviral Particles: sc-44480-V and STEP shRNA (r) Lentiviral Particles: sc-270083-V.

Molecular Weight of STEP: 38-68 kDa.

Positive Controls: SH-SY5Y cell lysate: sc-3812, EOC 20 whole cell lysate: sc-364187 or SK-N-MC cell lysate: sc-2237.

DATA



STEP (C-12): sc-22986. Western blot analysis of STEP expression in SH-SY5Y (**A**) and SK-N-MC (**B**) whole cell lysates.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

MONOS Satisfaction Guaranteed

Try **STEP (F-9): sc-514678** or **STEP (23E5): sc-23892**, our highly recommended monoclonal alternatives to STEP (C-12).