SANTA CRUZ BIOTECHNOLOGY, INC.

TC-PTP (D-3): sc-398997

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

T-cell protein tyrosine phosphatase (TC-PTP) is a non-transmembrane enzyme. The noncatalytic domain of TC-PTP is alternatively spliced to generate p45TC, which localizes to the nucleus, and p48TC, which contains a hydrophobic C-terminal tail and localizes to the ER. The C-terminal segment of p45TC regulates the activity of the catalytic domain through an intramolecular interaction. The p45TC variant of TC-PTP exits the nucleus upon EGF receptor activation and recognizes the EGF receptor and p52^{Shc} cellular substrates. The p45TC activity almost completely inhibits the EGF-dependent activation of PI 3-kinase and PKB/Akt. In glioblastoma cells, the p45TC variant inhibits the DEGFR-mediated activation of ERK2 and suppresses tumorigenicity *in vivo*. TC-PTP may play a role in lymphoctye signaling and hematopoietic homeostasis. TC-PTP negatively regulates JAK1 and JAK3 and TC-PTP-deficient mice display gross defects in the hematopoietic system. The gene encoding human TC-PTP maps to chromosome 18.

REFERENCES

1. Mosinger, B., et al. 1992. Cloning and characterization of a mouse cDNA encoding a cytoplasmic protein-tyrosine phosphatase. Proc. Natl. Acad. Sci. USA 89: 499-503.
2. Johnson, C.V., et al. 1993. Isolation and mapping of human T-cell protein tyrosine phosphatase sequences: localization of genes and pseudogenes discriminated using fluorescence hybridization with genomic versus cDNA probes. Genomics 16: 619-629.
3. Lorenzen, J.A., et al. 1995. COOH-terminal sequence motifs target the T cell protein tyrosine phosphatase to the ER and nucleus. J. Cell Biol. 131: 631-643.
4. Tiganis, T., et al. 1998. Epidermal growth factor receptor and the adaptor protein p52^{Shc} are specific substrates of T-cell protein tyrosine phosphatase. Mol. Cell. Biol. 18: 1622-1634.
5. Tiganis, T., et al. 1999. The protein-tyrosine phosphatase TCPTP regulates epidermal growth factor receptor-mediated and phosphatidylinositol 3-kinase-dependent signaling. J. Biol. Chem. 274: 27768-27775.

CHROMOSOMAL LOCATION

Genetic locus: PTPN2 (human) mapping to 18p11.21; Ptpn2 (mouse) mapping to 18 E1.

SOURCE

TC-PTP (D-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 291-312 within an internal region of TC-PTP of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-398997 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

TC-PTP (D-3) is recommended for detection of TC-PTP of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

Suitable for use as control antibody for TC-PTP siRNA (h): sc-76635, TC-PTP siRNA (m): sc-154127, TC-PTP shRNA Plasmid (h): sc-76635-SH, TC-PTP shRNA Plasmid (m): sc-154127-SH, TC-PTP shRNA (h) Lentiviral Particles: sc-76635-V and TC-PTP shRNA (m) Lentiviral Particles: sc-154127-V.

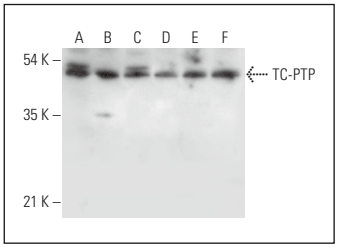
Molecular Weight of TC-PTP isoforms: 48/45 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, NIH/3T3 whole cell lysate: sc-2210 or Hep G2 cell lysate: sc-2227.

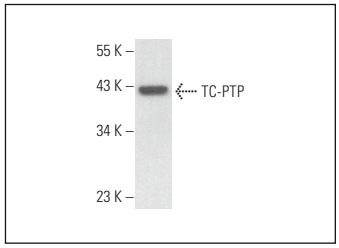
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



TC-PTP (D-3): sc-398997. Western blot analysis of TC-PTP expression in HeLa (**A**), NIH/3T3 (**B**), Hep G2 (**C**), Jurkat (**D**), CCRF-CEM (**E**) and HL-60 (**F**) whole cell lysates.



TC-PTP (D-3): sc-398997. Western blot analysis of TC-PTP expression in F9 whole cell lysate.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.