

# TC-PTP (M-115): sc-135426

## BACKGROUND

T cell protein tyrosine phosphatase (TC-PTP) is a nontransmembrane 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 p52Shc 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 DEGR-mediated activation of ERK2 and suppresses tumorigenicity *in vivo*. TC-PTP may play a role in lymphocyte 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 18p11.21.

## REFERENCES

- Mosinger, B., Jr., Tillmann, U., Westphal, H. and Tremblay, M.L. 1992. Cloning and characterization of a mouse cDNA encoding a cytoplasmic protein-tyrosine phosphatase. *Proc. Natl. Acad. Sci. USA* 89: 499-503.
- Johnson, C.V., Cool, D.E., Glaccum, M.B., Green, N., Fischer, E.H., Bruskin, A., Hill, D.E. and Lawrence, J.B. 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.
- Lorenzen, J.A., Dadabay, C.Y. and Fischer, E.H. 1995. COOH-terminal sequence motifs target the T cell protein tyrosine phosphatase to the ER and nucleus. *J. Cell Biol.* 131: 631-643.
- Tiganis, T., Bennett, A.M., Ravichandran, K.S. and Tonks, N.K. 1998. Epidermal growth factor receptor and the adaptor protein p52Shc are specific substrates of T cell protein tyrosine phosphatase. *Mol. Cell. Biol.* 18: 1622-1634.
- Tiganis, T., Kemp, B.E. and Tonks, N.K. 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 (M-115) is a rabbit polyclonal antibody raised against amino acids 292-406 mapping at the C-terminus of TC-PTP of mouse origin.

## PRODUCT

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

## APPLICATIONS

TC-PTP (M-115) is recommended for detection of TC-PTP of mouse, rat and, to a lesser extent, 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).

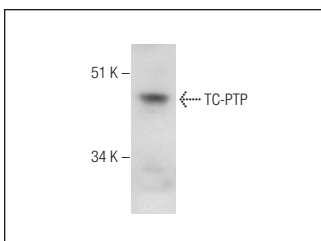
Suitable for use as control antibody for TC-PTP siRNA (h): sc-76635, TC-PTP siRNA (m): sc-154127, TC-PTP shRNA Plasmid (h): sc-76635-SH, TC-PTP shRNA Plasmid (m): sc-154127-SH, TC-PTP shRNA (h) Lentiviral Particles: sc-76635-V and TC-PTP shRNA (m) Lentiviral Particles: sc-154127-V.

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

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



TC-PTP (M-115): sc-135426. Western blot analysis of TC-PTP expression in PC-3 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.

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Try **TC-PTP (F-8): sc-373835** or **TC-PTP (D-3): sc-398997**, our highly recommended monoclonal alternatives to TC-PTP (M-115).