SANTA CRUZ BIOTECHNOLOGY, INC.

PTPσ (H-181): sc-366057

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Protein tyrosine phosphatases, or PTPσ, are type I transmembrane proteins, membrane associated proteins or proteins localized in nuclei. Examples of transmembrane PTPs are LAR, PTPα, PTPβ, PTPγ, PTPδ, PTPε, PTPζ, PTPκ, PTPμ and PTPσ. Transmembrane PTPσ play diverse roles during development and in adult tissues. Immunodepletion studies have suggested LAR to be a regulator of Insulin receptor phosphorylation. PTPα activity is increased twofold in response to phorbol ester stimulation, resulting in serine phosphorylation either directly or indirectly by members of the PKC family. Overexpression of v-H-Ras and Neu, but not Myc or Int2, in mammary tumors has been shown to induce PTPε expression. An alternative splicing event leads to a nervous tissue-specific chondroitin sulfate proteoglycan called phosphacan, which represents the amino terminal portion of PTPζ. PTPκ and PTPμ share a conserved amino terminal 160 amino acid MAM domain which facilitates homophilic binding. PTPμ localizes to points of cell contact and may be involved in regulating the assembly and disassembly of cadherin/catenin complexes *in vivo*. PTPσ contains an extracellular region, a single transmembrane segment and two tandem intracytoplasmic catalytic domains, and thus represents a receptor-type PTP. PTPσ may also be involved in the molecular control of adult nerve repair. Four alternatively spliced transcript variants, which encode distinct proteins, have been reported.

REFERENCES

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2. Fischer, E.H., et al. 1991. Protein tyrosine phosphatases: a diverse family of intracellular and transmembrane enzymes. Science 253: 401-406.
3. Pan, M.G., et al. 1993. Cloning and expression of two structurally distinct receptor-linked protein-tyrosine phosphatases generated by RNA processing from a single gene. J. Biol. Chem. 268:19284-19291.
4. Serra-Pages, C., et al. 1995. The LAR transmembrane protein tyrosine phosphatase and a coiled-coil LAR-interacting protein co-localize at focal adhesions. EMBO J. 14: 2827-2838.
5. Pulido, R., et al. 1995. The LAR/PTP δ/PTP σ subfamily of transmembrane protein-tyrosine-phosphatases. Proc. Natl. Acad. Sci. USA 92: 11686-11690.
6. Pulido, R., et al. 1995. Molecular characterization of the human transmembrane protein-tyrosine phosphatase δ. J. Biol. Chem. 270: 6722-6728.
7. Neel, B.G., et al. 1997. Protein tyrosine phosphatases in signal transduction. Curr. Opin. Cell Biol. 9:193-204.
8. Wallace, M.J., et al. 1998. The second catalytic domain of protein tyrosine phosphatase δ (PTPδ) binds to and inhibits the first catalytic domain of PTPσ. Mol. Cell. Biol. 18: 2608-2616.

CHROMOSOMAL LOCATION

Genetic locus: PTPRS (human) mapping to 19p13.3; Ptprs (mouse) mapping to 17 D.

RESEARCH USE

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

SOURCE

PTP (H-181) is a rabbit polyclonal antibody raised against amino acids 989-1169 mapping within an internal region of PTP of human origin.

PRODUCT

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

APPLICATIONS

PTPσ (H-181) is recommended for detection of PTPσ 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).

PTPσ (H-181) is also recommended for detection of PTPσ in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for PTPσ siRNA (h): sc-44056, PTPσ siRNA (m): sc-77403, PTPσ shRNA Plasmid (h): sc-44056-SH, PTPσ shRNA Plasmid (m): sc-77403-SH, PTPσ shRNA (h) Lentiviral Particles: sc-44056-V and PTPσ shRNA (m) Lentiviral Particles: sc-77403-V.

Molecular Weight of PTP : 217 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.

STORAGE

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

PROTOCOLS

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