SANTA CRUZ BIOTECHNOLOGY, INC.

PTPδ siRNA (h): sc-44052

BACKGROUND

Protein-tyrosine phosphatases, or PTPs, 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 and PTPμ. Transmembrane PTPs 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*.

REFERENCES

1. Krueger, N.X., et al. 1990. Structural diversity and evolution of human receptor-like protein tyrosine phosphatases. EMBO J. 9: 3241-3252.
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/PTPδ/PTPσ 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: PTPRD (human) mapping to 9p24.1.

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.

PRODUCT

PTPδ siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PTPδ shRNA Plasmid (h): sc-44052-SH and PTPδ shRNA (h) Lentiviral Particles: sc-44052-V as alternate gene silencing products.

For independent verification of PTPδ (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-44052A, sc-44052B and sc-44052C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PTPδ siRNA (h) is recommended for the inhibition of PTPδ expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PTPδ gene expression knockdown using RT-PCR Primer: PTPδ (h)-PR: sc-44052-PR (20 µl, 516 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.