SANTA CRUZ BIOTECHNOLOGY, INC.

PTPψ siRNA (m): sc-62911

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The Power to Question

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, PTPω, PTPκ, PTPμ and PTPψ. Transmembrane PTPs play diverse roles in a variety of cellular processes during development and in adult tissues. PTPψ, also known as PTPRU, FMI, PCP-2, PTP-J, PTPRO, PTP-PI, PTPPSI or GLEPP1, is a receptor-type PTP containing a transmembrane region, two intracellular tandem catalytic domains, and an extracellular region with Ig-like and fibronectin type III-like repeats and a MAM (meprin-A5 antigen-PTPμ) domain. PTPψ localizes to adheren junctions and is capable of binding and dephosphorylating β-catenin thereby functioning as a negative regulator of β-catenin signaling. In addition, PTPγ may function as a tumor suppressor, as its expression is silenced in a variety of tumors via methylation of its promoter.

REFERENCES

1. Sommer, L., et al. 1997. RPTP δ and the novel protein tyrosine phosphatase RPTP ψ are expressed in restricted regions of the developing central nervous system. Dev. Dyn. 208: 48-61.
2. Avraham, S., et al. 1997. Characterization and chromosomal localization of PTPRO, a novel receptor protein tyrosine phosphatase, expressed in hematopoietic stem cells. Gene 204: 5-16.
3. Taniguchi, Y., et al. 1999. The receptor protein tyrosine phosphatase, PTPRO, is upregulated during megakaryocyte differentiation and Is associated with the c-Kit receptor. Blood 94: 539-549.
4. McArdle, L., et al. 2001. Protein tyrosine phosphatase genes downregulated in melanoma. J. Invest. Dermatol. 117: 1255-1260.
5. Motiwala, T., et al. 2004. Protein tyrosine phosphatase receptor-type O (PTPRO) exhibits characteristics of a candidate tumor suppressor in human lung cancer. Proc. Natl. Acad. Sci. USA 101: 13844-13849.
6. Mori, Y., et al. 2004. Identification of genes uniquely involved in frequent microsatellite instability colon carcinogenesis by expression profiling combined with epigenetic scanning. Cancer Res. 64: 2434-2438.

CHROMOSOMAL LOCATION

Genetic locus: Ptpru (mouse) mapping to 4 D2.3.

PRODUCT

PTPψ siRNA (m) 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 PTPψ shRNA Plasmid (m): sc-62911-SH and PTPψ shRNA (m) Lentiviral Particles: sc-62911-V as alternate gene silencing products.

For independent verification of PTPψ (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62911A, sc-62911B and sc-62911C.

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

PTPψ siRNA (m) is recommended for the inhibition of PTPψ expression in mouse 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 PTPψ gene expression knockdown using RT-PCR Primer: PTPψ (m)-PR: sc-62911-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.