SANTA CRUZ BIOTECHNOLOGY, INC.

PTPρ siRNA (m): sc-62909

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, PTPμ and PTPρ. Transmembrane PTPs play diverse roles in a variety of cellular processes during development and in adult tissues. PTPρ, also known as PTPRT, RPTPT or RPTPρ, is a receptor-type PTP (RPTP) containing a transmembrane region, two intracellular tandem catalytic domains, an extracellular region with Ig-like and Fibronectin type III-like repeats and a MAM (meprin-A5 antigen-PTPμ) domain. RPTPs participate in neurite extension, signal transduction and cell adhesion. PTPρ is expressed at high levels in the central nervous system of both developing and adult tissues. It interacts with a variety of proteins that function at intercellular adheren junctions and it specifically binds and dephosphorylates E-cadherin.

REFERENCES

1. McAndrew, P.E., et al. 1998. Identification and characterization of RPTP ρ, a novel RPTP μ/κ-like receptor protein tyrosine phosphatase whose expression is restricted to the central nervous system. Brain Res. Mol. Brain Res. 56: 9-21.
2. Johnson, K.G. and Holt, C.E. 2000. Expression of CRYP-α, LAR, PTPδ, and PTPρ in the developing *Xenopus* visual system. Mech. Dev. 92: 291-294.
3. Besco, J.A., et al. 2001. Genomic organization and alternative splicing of the human and mouse RPTPρ genes. BMC Genomics 2: 1.
4. Johnson, K.G., et al. 2001. Receptor protein tyrosine phosphatases regulate retinal ganglion cell axon outgrowth in the developing *Xenopus* visual system. J. Neurobiol. 49: 99-117.
5. Besco, J., et al. 2004. Genomic structure and alternative splicing of murine R2B receptor protein tyrosine phosphatases (PTPκ, μ, ρ and PCP-2). BMC Genomics 5: 14-14.
6. Yan, H.X., et al. 2006. Protein-tyrosine phosphatase PCP-2 inhibits β-catenin signaling and increases E-cadherin-dependent cell adhesion. J. Biol. Chem. 281: 15423-15433.
7. Besco, J.A., et al. 2006. Intracellular substrates of brain-enriched receptor protein tyrosine phosphatase ρ (RPTPρ/PTPRT). Brain Res. 1116: 50-57.

CHROMOSOMAL LOCATION

Genetic locus: Ptprt (mouse) mapping to 2 H2.

PRODUCT

PTPρ 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 PTPρ shRNA Plasmid (m): sc-62909-SH and PTPρ shRNA (m) Lentiviral Particles: sc-62909-V as alternate gene silencing products.

For independent verification of PTPρ (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-62909A, sc-62909B and sc-62909C.

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

PTPρ siRNA (m) is recommended for the inhibition of PTPρ 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 PTPρ gene expression knockdown using RT-PCR Primer: PTPρ (m)-PR: sc-62909-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.