

PTPRQ siRNA (h): sc-45262

BACKGROUND

Protein tyrosine phosphorylation influences cell responses including growth, proliferation, differentiation, migration, metabolism and survival. Tyrosine phosphorylation is a reversible process in balance by the activities of protein tyrosine kinases and protein tyrosine phosphatases (PTP). The PTP superfamily includes transmembrane receptor-like PTPs, cytosolic phosphotyrosine specific PTPs, Dual Specificity PTPs (DSP), and Multiple Specificity PTP (MSPs). PTPRQ was first identified as a protein upregulated in rat kidney in response to glomerular nephritis. It displays a very low phosphatase activity against phosphotyrosine, but is active against phosphatidylinositol phosphates, which regulate survival, proliferation and subcellular architecture. PTPRQ has been shown to be the same molecule as the hair-cell antigen (HCA), and is required for the formation of shaft connectors of the hair bundle, the normal maturation of cochlear hair bundles, and the long-term survival of high-frequency auditory hair cells.

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. Wright, M.B., et al. 1998. Proliferating and migrating mesangial cells responding to injury express a novel receptor protein tyrosine phosphatase in experimental mesangial. *J. Biol. Chem.* 273: 23929-23937.
5. Goodyear, R.J., et al. 2003. A receptor-like inositol lipid phosphatase is required for the maturation of developing cochlear hair bundles. *J. Neurosci.* 23: 9208-9219.
6. Seifert, R.A., et al. 2003. PTPRQ is a novel phosphatidylinositol phosphatase that can be expressed as a cytoplasmic protein or as a subcellularly localized receptor-like protein. *Exp. Cell Res.* 287: 374-386.

CHROMOSOMAL LOCATION

Genetic locus: PTPRQ (human) mapping to 12q21.31.

PRODUCT

PTPRQ 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PTPRQ shRNA Plasmid (h): sc-45262-SH and PTPRQ shRNA (h) Lentiviral Particles: sc-45262-V as alternate gene silencing products.

For independent verification of PTPRQ (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-45262A, sc-45262B and sc-45262C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PTPRQ siRNA (h) is recommended for the inhibition of PTPRQ 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 μ M in 66 μ l. 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 PTPRQ gene expression knockdown using RT-PCR Primer: PTPRQ (h)-PR: sc-45262-PR (20 μ l). 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.