

PTP-H1 siRNA (h): sc-44053

BACKGROUND

The phosphorylation of proteins at tyrosine residues has long been recognized as an important regulatory component of signal transduction. This is a reversible process, involving both enzymes that phosphorylate proteins on tyrosine residues as well as a rapidly expanding family of protein tyrosine phosphatases. These latter enzymes bear little resemblance to either the protein serine and protein threonine phosphatases or to the acid and alkaline phosphatases. In most tissues, the major PTPase is a vanadate- and molybdate-sensitive protein. PTP-H1 shares homology with the cytoskeletal-associated proteins band 4.1, Ezrin, and Talin and has been shown to contain a PDZ and band 4.1 domain. These domains are responsible for targeting proteins to the cytoskeleton-membrane interface, as well as mediating protein-protein interactions, recognizing C-terminal valine residues and binding to other PDZ domains. Overexpression of PTP-H1 may reverse transformation induced by oncogenic protein-tyrosine kinases, such as the members of the Src family.

REFERENCES

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2. Tonks, N.K., et al. 1988. Purification of the major protein tyrosine phosphatases of human placenta. *J. Biol. Chem.* 263: 6722-6730.
3. Struelli, M., et al. 1988. A new member of the immunoglobulin superfamily that has a cytoplasmic region homologous to the leukocyte common antigen. *J. Exp. Med.* 168: 1523-1530.
4. Moria, A.O., et al. 1989. Reversible tyrosine phosphorylation of Cdc2: dephosphorylation accompanies activation during entry into mitosis. *Cell* 58: 193-203.
5. Gould, K.L., et al. 1989. Tyrosine phosphorylation of the fission yeast Cdc2 protein kinase regulates entry into mitosis. *Nature* 342: 39-45.
6. Lau, K.H.W., et al. 1989. Phosphotyrosyl protein phosphatases. *Biochem. J.* 257: 23-36.
7. Charbonneau, H., et al. 1989. Human placenta protein tyrosine phosphatase: amino acid sequence and relationship to a family of receptor-like proteins. *Proc. Natl. Acad. Sci. USA* 86: 5252-5256.

CHROMOSOMAL LOCATION

Genetic locus: PTPN3 (human) mapping to 9q31.3.

PRODUCT

PTP-H1 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 PTP-H1 shRNA Plasmid (h): sc-44053-SH and PTP-H1 shRNA (h) Lentiviral Particles: sc-44053-V as alternate gene silencing products.

For independent verification of PTP-H1 (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-44053A, sc-44053B and sc-44053C.

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

PTP-H1 siRNA (h) is recommended for the inhibition of PTP-H1 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.

GENE EXPRESSION MONITORING

PTP-H1 (H-6): sc-515181 is recommended as a control antibody for monitoring of PTP-H1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PTP-H1 gene expression knockdown using RT-PCR Primer: PTP-H1 (h)-PR: sc-44053-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.