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GLEPP1 siRNA (h): sc-44890

BACKGROUND

Protein phosphatases play critical roles in the regulation of signal transduction pathways. The family can be separated into three general categories, which are distinguished on the basis of substrate specificity. The first and largest category, termed protein tyrosine phosphatases or PTPs, includes transmembrane proteins, membrane associated proteins and proteins that localize to nuclei. The second category of protein phosphatases dephosphorylate proteins on phosphoserine and phosphothreonine residues, whereas the third category of protein phosphatases exhibit dual specificities and can dephosphorylate proteins on phosphotyrosine and phosphoserine/phosphothreonine residues. Glomerular epithelial protein 1 (GLEPP1), also designated protein tyrosine phosphatase U2 (PTPase U2) or receptor-type tyrosine-protein phosphatase O (PTPRO), belongs to the protein-tyrosine phosphatase family. GLEPP1 is a Type I membrane protein containing 8 fibronectin type-III domains and 1 tyrosine-protein phosphatase domain. GLEPP1 is expressed primarily in the glomeruli of the kidney, but is also detected in placenta, lung and brain.

REFERENCES

1. Seimiya, H., et al. 1995. Cloning, expression and chromosomal localization of a novel gene for protein tyrosine phosphatase (PTP-U2) induced by various differentiation-inducing agents. *Oncogene* 10: 1731-1738.
2. Wiggins, R.C., et al. 1995. Molecular cloning of cDNAs encoding human GLEPP1, a membrane protein tyrosine phosphatase: characterization of the GLEPP1 protein distribution in human kidney and assignment of the GLEPP1 gene to human chromosome. *Genomics* 27: 174-181.
3. Pavenstadt, H., et al. 2000. Roles of the podocyte in glomerular function. *Am. J. Physiol. Renal Physiol.* 278: F173-F179.
4. Kim, Y.H., et al. 2002. GLEPP1 receptor tyrosine phosphatase (Ptpro) in rat PAN nephrosis. A marker of acute podocyte injury. *Nephron* 90: 471-476.
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. Chen, B., et al. 2005. A novel substrate of receptor tyrosine phosphatase PTPRO is required for nerve growth factor-induced process outgrowth. *J. Neurosci.* 25: 880-888.

CHROMOSOMAL LOCATION

Genetic locus: PTPRO (human) mapping to 12p12.3.

PRODUCT

GLEPP1 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 GLEPP1 shRNA Plasmid (h): sc-44890-SH and GLEPP1 shRNA (h) Lentiviral Particles: sc-44890-V as alternate gene silencing products.

For independent verification of GLEPP1 (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-44890A, sc-44890B and sc-44890C.

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

GLEPP1 siRNA (h) is recommended for the inhibition of GLEPP1 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

GLEPP1 (B-6): sc-365354 is recommended as a control antibody for monitoring of GLEPP1 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 GLEPP1 gene expression knockdown using RT-PCR Primer: GLEPP1 (h)-PR: sc-44890-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.