

SEPHS1 siRNA (h): sc-90338

BACKGROUND

SEPHS1 (selenophosphate synthetase 1), also known as SELD, SPS or SPS1, is a 392 amino acid member of the selenophosphate synthetase 1 family and is one of two mammalian homologs of the eubacteria selenophosphate synthetase protein SelD. SelD is an enzyme that generates the selenium donor for the biosynthesis of selenocysteine, an amino acid that is co-translationally incorporated into selenoproteins at in-frame UGA codons. SEPHS1 has a similar function to SelD and specifically catalyzes the formation of selenophosphate (the active selenium donor) from selenide, ATP and H₂O. Proper SEPHS1 function depends on a selenium salvage system that recycles L-selenocysteine, thereby providing the substrates for selenophosphate synthesis.

REFERENCES

1. Low, S.C., et al. 1995. Cloning and functional characterization of human selenophosphate synthetase, an essential component of selenoprotein synthesis. *J. Biol. Chem.* 270: 21659-21664.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 600902. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Tamura, T., et al. 2004. Selenophosphate synthetase genes from lung adenocarcinoma cells: Sps1 for recycling L-selenocysteine and Sps2 for selenite assimilation. *Proc. Natl. Acad. Sci. USA* 101: 16162-16167.
4. Saiki, R., et al. 2005. Characterization of solanesyl and decaprenyl diphosphate synthases in mice and humans. *FEBS J.* 272: 5606-5622.
5. Chung, H.J., et al. 2006. p53-mediated enhancement of radiosensitivity by selenophosphate synthetase 1 overexpression. *J. Cell. Physiol.* 209: 131-141.
6. Hoffmann, P.R., et al. 2007. The selenoproteome exhibits widely varying, tissue-specific dependence on selenoprotein P for selenium supply. *Nucleic Acids Res.* 35: 3963-3973.

CHROMOSOMAL LOCATION

Genetic locus: SEPHS1 (human) mapping to 10p13.

PRODUCT

SEPHS1 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 SEPHS1 shRNA Plasmid (h): sc-90338-SH and SEPHS1 shRNA (h) Lentiviral Particles: sc-90338-V as alternate gene silencing products.

For independent verification of SEPHS1 (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-90338A, sc-90338B and sc-90338C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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

SEPHS1 siRNA (h) is recommended for the inhibition of SEPHS1 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

SEPHS1 (F-6): sc-365945 is recommended as a control antibody for monitoring of SEPHS1 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 SEPHS1 gene expression knockdown using RT-PCR Primer: SEPHS1 (h)-PR: sc-90338-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.