SANTA CRUZ BIOTECHNOLOGY, INC.

PSPH siRNA (h): sc-76125

BACKGROUND

Serine is an amino acid required for protein and nucleotide synthesis that may also be involved in cell to cell signaling. PSPH, also known as phosphoserine phosphatase or PSP, is a 225 amino acid Mg^{2+}-dependent enzyme that catalyzes the last and irreversible step in the biosynthesis of serine from carbohydrates, which is the hydrolysis of O-phosphoserine. In the embryonic brain, PSPH is highly expressed in periventricular neural progenitors where it may have a role in neural stem cell proliferation. A lack of PSPH in humans has been shown to cause pre- and postnatal growth retardation as well as moderate psychomotor retardation.

REFERENCES

1. Koch, G.A., et al. 1983. Assignment of the human phosphoserine phosphatase gene (PSP) to the pter leads to q22 region of chromosome 7. Cytogenet. Cell Genet. 35: 67-69.
2. Sparkes, R.S., et al. 1983. The human phosphoserine phosphatase gene (PSP) is mapped to chromosome 7 by somatic cell genetic analysis. Cytogenet. Cell Genet. 35: 70-71.
3. Collet, J.F., et al. 1997. Human L-3-phosphoserine phosphatase: sequence, expression and evidence for a phosphoenzyme intermediate. FEBS Lett. 408: 281-284.
4. Jaeken, J., et al. 1997. Phosphoserine phosphatase deficiency in a patient with Williams syndrome. J. Med. Genet. 34: 594-596.
5. Collet, J.F., et al. 1999. Mechanistic studies of phosphoserine phosphatase, an enzyme related to P-type ATPases. J. Biol. Chem. 274: 33985-33990.
6. Peeraer, Y., et al. 2004. How calcium inhibits the magnesium-dependent enzyme human phosphoserine phosphatase. Eur. J. Biochem. 271: 3421-3427.
7. Tribble, G.D., et al. 2006. A *Porphyromonas gingivalis* haloacid dehalogenase family phosphatase interacts with human phosphoproteins and is important for invasion. Proc. Natl. Acad. Sci. USA 103: 11027-11032.
8. Wang, Y., et al. 2006. DNA microarray reveals novel genes induced by mechanical forces in fetal lung type II epithelial cells. Pediatr. Res. 60: 118-124.

CHROMOSOMAL LOCATION

Genetic locus: PSPH (human) mapping to 7p11.2.

PRODUCT

PSPH 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PSPH shRNA Plasmid (h): sc-76125-SH and PSPH shRNA (h) Lentiviral Particles: sc-76125-V as alternate gene silencing products.

For independent verification of PSPH (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-76125A, sc-76125B and sc-76125C.

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

PSPH siRNA (h) is recommended for the inhibition of PSPH 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 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.

GENE EXPRESSION MONITORING

PSPH (H-10): sc-271421 is recommended as a control antibody for monitoring of PSPH 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 PSPH gene expression knockdown using RT-PCR Primer: PSPH (h)-PR: sc-76125-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.