

PSPH (3G12): sc-69704

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

- 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.
- 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.
- Collet, J.F., et al. 1997. Human L-3-phosphoserine phosphatase: sequence, expression and evidence for a phosphoenzyme intermediate. *FEBS Lett.* 408: 281-284.
- Jaeken, J., et al. 1997. Phosphoserine phosphatase deficiency in a patient with Williams syndrome. *J. Med. Genet.* 34: 594-596.
- Collet, J.F., et al. 1999. Mechanistic studies of phosphoserine phosphatase, an enzyme related to P-type ATPases. *J. Biol. Chem.* 274: 33985-33990.
- Peeraer, Y., et al. 2004. How calcium inhibits the magnesium-dependent enzyme human phosphoserine phosphatase. *Eur. J. Biochem.* 271: 3421-3427.
- 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.
- 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.
- Nakano, I., et al. 2007. Phosphoserine phosphatase is expressed in the neural stem cell niche and regulates neural stem and progenitor cell proliferation. *Stem Cells* 25: 1975-1984.

CHROMOSOMAL LOCATION

Genetic locus: PSPH (human) mapping to 7p11.2; PspH (mouse) mapping to 5 G1.3.

SOURCE

PSPH (3G12) is a mouse monoclonal antibody raised against full length recombinant phosphoserine phosphatase of human origin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

Each vial contains 50 μ g IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and 1% glycerol.

APPLICATIONS

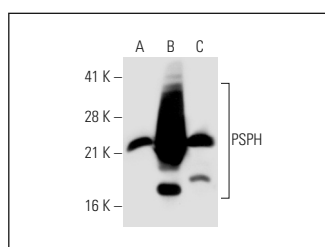
PSPH (3G12) is recommended for detection of PSPH of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PSPH siRNA (h): sc-76125, PSPH siRNA (m): sc-76126, PSPH shRNA Plasmid (h): sc-76125-SH, PSPH shRNA Plasmid (m): sc-76126-SH, PSPH shRNA (h) Lentiviral Particles: sc-76125-V and PSPH shRNA (m) Lentiviral Particles: sc-76126-V.

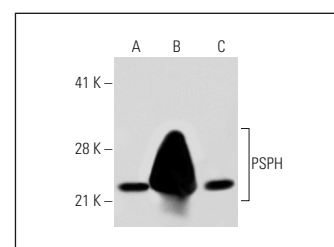
Molecular Weight of PSPH: 25 kDa.

Positive Controls: PSPH (h): 293T Lysate: sc-116691, PSPH (m): 293T Lysate: sc-122827 or K-562 whole cell lysate: sc-2203.

DATA



PSPH (3G12): sc-69704. Western blot analysis of PSPH expression in non-transfected 293T: sc-117752 (A), mouse PSPH transfected 293T: sc-122827 (B) and Hep G2 (C) whole cell lysates.



PSPH (3G12): sc-69704. Western blot analysis of PSPH expression in non-transfected 293T: sc-117752 (A), human PSPH transfected 293T: sc-116691 (B) and K-562 (C) whole cell lysates.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

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