

# PHPT1 siRNA (m): sc-152235

## BACKGROUND

PHPT1 (Phosphohistidine phosphatase 1), also known as 14 kDa phosphohistidine phosphatase, is a 125 amino acid enzyme belonging to the Janus protein family. Existing as a monomer in the cytoplasm, PHPT1 is an EDTA-insensitive phosphohistidine phosphatase. First identified in human adrenal gland, PHPT1 is highly expressed in skeletal muscle and heart, with lower expression in liver, pancreas and kidney. Overexpression of PHPT1 leads to specific phosphohistidine phosphatase activity towards phosphopeptide I, with no activity detected towards phosphotyrosine, phosphothreonine and phosphoserine peptides. PHPT1 is highly conserved among species, suggesting that it serves an essential functional role.

## REFERENCES

1. Zhang, Q.H., et al. 2000. Cloning and functional analysis of cDNAs with open reading frames for 300 previously undefined genes expressed in CD34<sup>+</sup> hematopoietic stem/progenitor cells. *Genome Res.* 10: 1546-1560.
2. Lai, C.H., et al. 2001. Identification of the human crooked neck gene by comparative gene identification. *Biochim. Biophys. Acta* 1517: 449-454.
3. Ek, P., et al. 2002. Identification and characterization of a mammalian 14-kDa phosphohistidine phosphatase. *Eur. J. Biochem.* 269: 5016-5023.
4. Klumpp, S., et al. 2002. Protein histidine phosphatase: a novel enzyme with potency for neuronal signaling. *J. Cereb. Blood Flow Metab.* 22: 1420-1424.
5. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 610167. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Klumpp, S., et al. 2003. ATP-citrate lyase as a substrate of protein histidine phosphatase in vertebrates. *Biochem. Biophys. Res. Commun.* 306: 110-115.
7. Ma, R., et al. 2005. Mutational study of human phosphohistidine phosphatase: effect on enzymatic activity. *Biochem. Biophys. Res. Commun.* 337: 887-891.
8. Bäumer, N., et al. 2007. Expression of protein histidine phosphatase in *Escherichia coli*, purification, and determination of enzyme activity. *Methods Mol. Biol.* 365: 247-260.

## CHROMOSOMAL LOCATION

Genetic locus: Phpt1 (mouse) mapping to 2 A3.

## PRODUCT

PHPT1 siRNA (m) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PHPT1 shRNA Plasmid (m): sc-152235-SH and PHPT1 shRNA (m) Lentiviral Particles: sc-152235-V as alternate gene silencing products.

## RESEARCH USE

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

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

PHPT1 siRNA (m) is recommended for the inhibition of PHPT1 expression in mouse 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  $\mu$ M in 66  $\mu$ 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

PHPT1 (C-6): sc-398659 is recommended as a control antibody for monitoring of PHPT1 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 (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker<sup>™</sup> compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PHPT1 gene expression knockdown using RT-PCR Primer: PHPT1 (m)-PR: sc-152235-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.