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# PHYHD1 siRNA (m): sc-152239

## BACKGROUND

PHYHD1 (phytanoyl-CoA dioxygenase domain containing 1) is a 291 amino acid protein belonging to the PHYH family and the PHYHD1 subfamily. Encoded by a gene that maps to human chromosome 9q34.11, PHYHD1 exists as three alternatively spliced isoforms and likely functions as an  $\alpha$ -ketoglutarate-dependent dioxygenase. PHYHD1 participates in metal ion binding and oxidoreductase activity, thereby acting on single donors with incorporation of two atoms of oxygen. Related to PHYH (phytanoyl-CoA 2-hydroxylase), an Fe(II) and 2-oxoglutarate (2OG)-dependent oxygenase that catalyzes the initial  $\alpha$ -oxidation step in the degradation of phytanic acid in peroxisomes, PHYHD1 similarly exhibits additional homologues in a wide range of metazoans and bacteria. PHYHD1 also may play a role in DNA methylation in early postnatal liver development and mammalian differentiation.

## REFERENCES

- McDonough, M.A., et al. 2005. Structure of human phytanoyl-CoA 2-hydroxylase identifies molecular mechanisms of Refsum disease. *J. Biol. Chem.* 280: 41101-41110.
- Searls, T., et al. 2005. Studies on the specificity of unprocessed and mature forms of phytanoyl-CoA 2-hydroxylase and mutation of the iron binding ligands. *J. Lipid Res.* 46: 1660-1667.
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- McQuillin, A., et al. 2007. A microarray gene expression study of the molecular pharmacology of lithium carbonate on mouse brain mRNA to understand the neurobiology of mood stabilization and treatment of bipolar affective disorder. *Pharmacogenet. Genomics* 17: 605-617.
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- Rooryck, C., et al. 2010. Array-CGH analysis of a cohort of 86 patients with oculoauroiculovertrebral spectrum. *Am. J. Med. Genet. A* 152A: 1984-1989.

## CHROMOSOMAL LOCATION

Genetic locus: Phyhd1 (mouse) mapping to 2 B.

## PRODUCT

PHYHD1 siRNA (m) is a pool of 2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PHYHD1 shRNA Plasmid (m): sc-152239-SH and PHYHD1 shRNA (m) Lentiviral Particles: sc-152239-V as alternate gene silencing products.

For independent verification of PHYHD1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-152239A and sc-152239B.

## 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

PHYHD1 siRNA (m) is recommended for the inhibition of PHYHD1 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

PHYHD1 (B-6): sc-398378 is recommended as a control antibody for monitoring of PHYHD1 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PHYHD1 gene expression knockdown using RT-PCR Primer: PHYHD1 (m)-PR: sc-152239-PR (20  $\mu$ 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](http://www.scbt.com) for detailed protocols and support products.