SANTA CRUZ BIOTECHNOLOGY, INC.

PHYHD1 (G-12): sc-398628

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 α-ketoglutatare-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 α-oxidation step in the degradation of phytenic 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

1. 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.
2. 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.
3. Schofield, C.J. and McDonough, M.A. 2007. Structural and mechanistic studies on the peroxisomal oxygenase phytanoyl-CoA 2-hydroxylase (PHYH). Biochem. Soc. Trans. 35: 870-875.
4. 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.
5. Waterland, R.A., et al. 2009. Epigenomic profiling indicates a role for DNA methylation in early postnatal liver development. Hum. Mol. Genet. 18: 3026-3038.
6. Ortiz, M., et al. 2009. Evolutionary trajectories of primate genes involved in HIV pathogenesis. Mol. Biol. Evol. 26: 2865-2875.
7. Rooryck, C., et al. 2010. Array-CGH analysis of a cohort of 86 patients with oculoauriculovertebral spectrum. Am. J. Med. Genet. A 152A: 1984-1989.

CHROMOSOMAL LOCATION

Genetic locus: PHYHD1 (human) mapping to 9q34.11.

SOURCE

PHYHD1 (G-12) is a mouse monoclonal antibody raised against amino acids 1-56 mapping at the N-terminus of PHYHD1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

PHYHD1 (G-12) is recommended for detection of PHYHD1 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PHYHD1 siRNA (h): sc-92509, PHYHD1 shRNA Plasmid (h): sc-92509-SH and PHYHD1 shRNA (h) Lentiviral Particles: sc-92509-V.

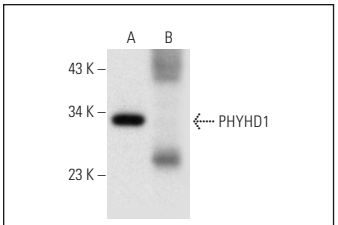
Molecular Weight of PHYHD1 isoforms 1/2/3: 32/30/33 kDa.

Positive Controls: human liver extract: sc-363766, mouse liver extract: sc-2256 or Hep G2 cell lysate: sc-2227.

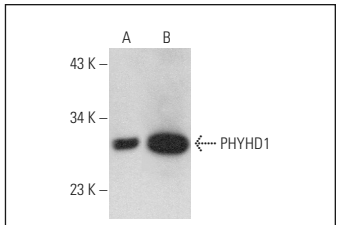
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



PHYHD1 (G-12): sc-398628. Western blot analysis of PHYHD1 expression in human liver (**A**) and mouse liver (**B**) tissue extracts. Note lack of reactivity with mouse PHYHD1 in lane **B** at 32 kDa.



PHYHD1 (G-12): sc-398628. Western blot analysis of PHYHD1 expression in Hep G2 whole cell lysate (**A**) and human liver tissue extract (**B**).

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.