

ABHD5 siRNA (h): sc-78146

BACKGROUND

α/β -hydrolase domains are characterized by a catalytic triad composed of a histidine, an acid and a nucleophile. ABHD5 (abhydrolase domain containing 5), also known as CGI-58, NCIE2 or CDS, is a 349 amino acid protein that contains an α/β -hydrolase domain through which it conveys catalytic function. Localized to the surface of lipid droplets, ABHD5 is widely expressed and interacts with Perilipin on the surface of lipid droplets where it facilitates lipolysis, the breakdown of fat. Defects in the gene encoding ABHD5 are the cause of Chananin-Dorfman syndrome (CDS), an autosomal recessive inborn error of lipid metabolism with impaired long-chain fatty acid oxidation. CDS symptoms include congenital generalized ichthyosis, vacuolated leukocytes, hepatomegaly, myopathy, cataracts, neurosensory hearing loss and developmental delay.

REFERENCES

1. Lefèvre, C., et al. 2001. Mutations in CGI-58, the gene encoding a new protein of the esterase/lipase/thioesterase subfamily, in Chananin-Dorfman syndrome. *Am. J. Hum. Genet.* 69: 1002-1012.
2. Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604780. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Schleinitz, N., et al. 2005. Two new mutations of the ABHD5 gene in a new adult case of Chananin-Dorfman syndrome: an uncommon lipid storage disease. *Arch. Dermatol.* 141: 798-800.
4. Lass, A., et al. 2006. Adipose triglyceride lipase-mediated lipolysis of cellular fat stores is activated by CGI-58 and defective in Chananin-Dorfman syndrome. *Cell Metab.* 3: 309-319.
5. Ben Selma, Z., et al. 2007. A novel S115G mutation of CGI-58 in a Turkish patient with Dorfman-Chananin syndrome. *J. Invest. Dermatol.* 127: 2273-2276.
6. Fischer, J., et al. 2007. Neutral lipid storage diseases and ATGL (adipose triglyceride lipase) and CGI-58/ABHD5 (α/β hydrolase domain-containing 5) deficiency: myopathy, ichthyosis, but no obesity. *Med. Sci.* 23: 575-578.

CHROMOSOMAL LOCATION

Genetic locus: ABHD5 (human) mapping to 3p21.33.

PRODUCT

ABHD5 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ABHD5 shRNA Plasmid (h): sc-78146-SH and ABHD5 shRNA (h) Lentiviral Particles: sc-78146-V as alternate gene silencing products.

For independent verification of ABHD5 (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-78146A, sc-78146B and sc-78146C.

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

APPLICATIONS

ABHD5 siRNA (h) is recommended for the inhibition of ABHD5 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 μ M in 66 μ 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

ABHD5 (E-1): sc-376931 is recommended as a control antibody for monitoring of ABHD5 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 κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 ABHD5 gene expression knockdown using RT-PCR Primer: ABHD5 (h)-PR: sc-78146-PR (20 μ 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 for detailed protocols and support products.