

# ABCD3 siRNA (h): sc-41147

## BACKGROUND

The peroxisomal membrane contains several ATP-binding cassette (ABC) transporters, ABCD1-4 that are known to be present in the human peroxisome membrane. All four proteins are ABC half-transporters, which dimerize to form an active transporter. A mutation in the ABCD1 gene causes X-linked adrenoleukodystrophy (X-ALD), a peroxisomal disorder which affects lipid storage. ABCD2 in mouse is expressed at high levels in the brain and adrenal organs, which are adversely affected in X-ALD. The peroxisomal membrane comprises two quantitatively major proteins, PMP22 and ABCD3. ABCD3 is associated with irregularly shaped vesicles which may be defective peroxisomes or peroxisome precursors. ABCD1 localizes to peroxisomes. ABCB7 is a half-transporter involved in the transport of heme from the mitochondria to the cytosol.

## REFERENCES

1. Gartner, J., et al. 1993. Localization of the 70-kDa peroxisomal membrane protein to human 1p21-p22 and mouse 3. *Genomics* 15: 412-414.
2. Lombard-Platet, G., et al. 1996. A close relative of the adrenoleukodystrophy (ALD) gene codes for a peroxisomal protein with a specific expression pattern. *Proc. Natl. Acad. Sci. USA* 93: 1265-1269.
3. Shani, N., et al. 1997. Identification of a fourth half ABC transporter in the human peroxisomal membrane. *Hum. Mol. Genet.* 6: 1925-1931.
4. Moser, H.W. 1997. Adrenoleukodystrophy: phenotype, genetics, pathogenesis and therapy. *Brain* 120: 1485-1508.
5. Savary, S., et al. 1997. Chromosomal localization of the adrenoleukodystrophy-related gene in man and mice. *Eur. J. Hum. Genet.* 5: 99-101.
6. Holzinger, A., et al. 1998. Genomic organization and chromosomal localization of the human peroxisomal membrane protein-1-like protein (Pxm1-L) gene encoding a peroxisomal ABC transporter. *FEBS Lett.* 426: 238-242.
7. Shimada, Y., et al. 1998. Cloning and chromosomal mapping of a novel ABC transporter gene (hABCT7), a candidate for X-linked sideroblastic anemia with spinocerebellar ataxia. *J. Hum. Genet.* 43: 115-122.
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## CHROMOSOMAL LOCATION

Genetic locus: ABCD3 (human) mapping to 1p21.3.

## PRODUCT

ABCD3 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ABCD3 shRNA Plasmid (h): sc-41147-SH and ABCD3 shRNA (h) Lentiviral Particles: sc-41147-V as alternate gene silencing products.

For independent verification of ABCD3 (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-41147A, sc-41147B and sc-41147C.

## 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

ABCD3 siRNA (h) is recommended for the inhibition of ABCD3 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  $\mu$ 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

ABCD3 (F-1): sc-514728 is recommended as a control antibody for monitoring of ABCD3 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>TM</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 ABCD3 gene expression knockdown using RT-PCR Primer: ABCD3 (h)-PR: sc-41147-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.