

# ABC1 siRNA (m): sc-41137

## BACKGROUND

ABC1 (for ATP-binding cassette transporter 1) is a member of the family of ATP-binding cassette proteins which transport various molecules across biological membranes. ABC1 contains 2 characteristic ATP-binding domains and 12 transmembrane domains which form a channel-like structure for transport. Mutations in the ABC1 gene are implicated in Tangier disease, characterized by low serum high density lipoprotein. ABC1 is widely expressed in human tissues, with high levels of expression in liver, lung, adrenal glands, placenta and fetal tissue. ABC1 expression is induced during monocyte differentiation and upregulated in the presence of acetylated low-density lipoprotein. ABC1 may have a dual regulatory function in macrophage lipid metabolism and inflammation.

## REFERENCES

1. Decottignies, A. and Goffeau, A. 1997. Complete inventory of the yeast ABC proteins. *Nat. Genet.* 15: 137-145.
2. Schwiebert, E.M. 1999. ABC transporter-facilitated ATP conductive transport. *Am. J. Physiol.* 276: C1-C8.
3. Langmann, T., et al. 1999. Molecular cloning of the human ATP-binding cassette transporter 1 (hABC1): evidence for sterol-dependent regulation in macrophages. *Biochem. Biophys. Res. Commun.* 257: 29-33.
4. Rust, S., et al. 1999. Tangier disease is caused by mutations in the gene encoding ATP-binding cassette transporter 1. *Nat. Genet.* 22: 352-355.

## CHROMOSOMAL LOCATION

Genetic locus: Abca1 (mouse) mapping to 4 B2.

## PRODUCT

ABC1 siRNA (m) 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 ABC1 shRNA Plasmid (m): sc-41137-SH and ABC1 shRNA (m) Lentiviral Particles: sc-41137-V as alternate gene silencing products.

For independent verification of ABC1 (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-41137A, sc-41137B and sc-41137C.

## 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.

## RESEARCH USE

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

## APPLICATIONS

ABC1 siRNA (m) is recommended for the inhibition of ABC1 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

ABC1 (AC10): sc-53482 is recommended as a control antibody for monitoring of ABC1 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™ Molecular Weight Standards: sc-2035, UltraCruz® 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® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ABC1 gene expression knockdown using RT-PCR Primer: ABC1 (m)-PR: sc-41137-PR (20  $\mu$ l, 420 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Cheng, L.C., et al. 2011.  $\alpha$ -Lipoic acid ameliorates foam cell formation via liver X receptor  $\alpha$ -dependent upregulation of ATP-binding cassette transporters A1 and G1. *Free Radic. Biol. Med.* 50: 47-54.
2. Feng, T., et al. 2018. SIRT1 activator E1231 protects from experimental atherosclerosis and lowers plasma cholesterol and triglycerides by enhancing ABCA1 expression. *Atherosclerosis* 274: 172-181.
3. Guo, Z., et al. 2022. Apolipoprotein A-I inhibits transendothelial transport of apolipoprotein B-carrying lipoproteins and enhances its associated high-density lipoprotein formation. *J. Vasc. Res.* 59: 275-287.

## PROTOCOLS

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