



# ABCA1 siRNA (m): sc-61902

## BACKGROUND

The ATP-binding cassette (ABC) transporters, or traffic ATPases, constitute an expansive family of proteins accountable for the transport of a wide variety of substrates across cell membranes in both prokaryotic and eukaryotic cells. They also aid in the regulation of lipid transport and membrane trafficking. ABCA1 (ATP-binding cassette, subfamily A, member 1) is a 2,261 amino acid protein that contains two highly conserved ATP-binding cassettes including Walker A and B motifs. ABCA1 is expressed in platelet plasma membranes and functions as a key protein in the cellular lipid removal pathway and cholesterol efflux. Mutations in the gene encoding for ABCA1 are correlated with Tangier disease, which is characterized by a defect in cellular cholesterol removal. This results in near zero plasma levels of HDL and in massive tissue deposition of cholesteryl esters, which commonly leads to hepatosplenomegaly, peripheral neuropathy and, usually, premature coronary artery disease.

## REFERENCES

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2. Decottignies, A. and Goffeau, A. 1997. Complete inventory of the yeast ABC proteins. *Nat. Genet.* 15: 137-145.
3. Brooks-Wilson, A., et al. 1999. Mutations in ABC1 in Tangier disease and familial high-density lipoprotein deficiency. *Nat. Genet.* 22: 336-345.
4. Bodzioch, M., et al. 1999. The gene encoding ATP-binding cassette transporter 1 is mutated in Tangier disease. *Nat. Genet.* 22: 347-351.
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6. Cohen, J.C., et al. 2004. Multiple rare alleles contribute to low plasma levels of HDL cholesterol. *Science* 305: 869-872.
7. Albrecht, C., et al. 2005. A novel missense mutation in ABCA1 results in altered protein trafficking and reduced phosphatidylserine translocation in a patient with Scott syndrome. *Blood* 106: 542-549.
8. Brunham, L.R., et al. 2006. Intestinal ABCA1 directly contributes to HDL biogenesis *in vivo*. *J. Clin. Invest.* 116: 1052-1062.
9. Vaughan, A.M. and Oram, J.F. 2006. ABCA1 and ABCG1 or ABCG4 act sequentially to remove cellular cholesterol and generate cholesterol-rich HDL. *J. Lipid Res.* 47: 2433-2443.

## CHROMOSOMAL LOCATION

Genetic locus: Abca1 (mouse) mapping to 4 A5-B3.

## PROTOCOLS

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

## PRODUCT

ABCA1 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 ABCA1 shRNA Plasmid (m): sc-61902-SH and ABCA1 shRNA (m) Lentiviral Particles: sc-61902-V as alternate gene silencing products.

For independent verification of ABCA1 (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-61902A, sc-61902B and sc-61902C.

## 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

ABCA1 siRNA (m) is recommended for the inhibition of ABCA1 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 60  $\mu$ 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ABCA1 gene expression knockdown using RT-PCR Primer: ABCA1 (m)-PR: sc-61902-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.