SANTA CRUZ BIOTECHNOLOGY, INC.

ABC-me siRNA (m): sc-41156

BACKGROUND

ATP-binding cassette (ABC) transporters constitute a group of highly conserved cellular transmembrane proteins, that participate in diverse physiological processes by coupling ATP hydrolysis to the transport of a variety of substrates across cell membranes. A newly identified ABC transporter, ABC-me (for ABC-mitochondrial erythroid), localizes to the mitochondrial inner membrane and is expressed at high levels in erythroid tissues of embryos and adults. ABC-me is a half-ABC transporter and comprises one ATP binding domain and three transmembrane loops, which suggests that ABC-me functions as either a homo- or heterodimer. ABC-me, a 482 amino acid protein, is strongly induced by the transcription factor GATA-1, which is essential for normal erythoropoiesis. In addition, ABC-me contains GATA-binding sites that are normally present in promoters or enhancers of genes expressed selectively in erythroid cells. ABC-me is induced during erythroid maturation in cell lines and primary hematopoietic cells, and its overexpression enhances hemoglobin synthesis in erythroleukemia cells. ABC-me may mediate critical mitochondrial transport functions related to heme biosynthesis.

REFERENCES

1. Dean, M. and Allikmets, R. 1995. Evolution of ATP-binding cassette transporter genes. Curr. Opin. Genet. Dev. 5: 779-785.
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3. Schmitz, G., Kaminski, W.E. and Orso, E. 2000. ABC transporters in cellular lipid trafficking. Curr. Opin. Lipidol. 11: 493-501.
4. Shirihai, O.S., Gregory, T., Yu, C., Orkin, S.H. and Weiss, M.J. 2000. ABC-me: a novel mitochondrial transporter induced by GATA-1 during erythroid differentiation. EMBO J. 19: 2492-2502.
5. Young, L., Leonhard, K., Tatsuta, T., Trowsdale, J. and Langer, T. 2001. Role of the ABC transporter Mdl1 in peptide export from mitochondria. Science 291: 2135-2138.
6. Graf, S.A., Haigh, S.E., Corson, E.D. and Shirihai, O.S. 2004. Targeting, import, and dimerization of a mammalian mitochondrial ATP binding cassette (ABC) transporter, ABCB10 (ABC-me). J. Biol. Chem. 279: 42954-42963.

CHROMOSOMAL LOCATION

Genetic locus: Abcb10 (mouse) mapping to 8 E2.

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.

PRODUCT

ABC-me 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ABC-me shRNA Plasmid (m): sc-41156-SH and ABC-me shRNA (m) Lentiviral Particles: sc-41156-V as alternate gene silencing products.

For independent verification of ABC-me (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-41156A, sc-41156B and sc-41156C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ABC-me siRNA (m) is recommended for the inhibition of ABC-me 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 µM in 66 µl. 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 ABC-me gene expression knockdown using RT-PCR Primer: ABC-me (m)-PR: sc-41156-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.