SANTA CRUZ BIOTECHNOLOGY, INC.

ABC-me siRNA (h): sc-41155

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

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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 (human) mapping to 1q42.13.

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 (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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ABC-me shRNA Plasmid (h): sc-41155-SH and ABC-me shRNA (h) Lentiviral Particles: sc-41155-V as alternate gene silencing products.

For independent verification of ABC-me (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-41155A, sc-41155B and sc-41155C.

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 (h) is recommended for the inhibition of ABC-me 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 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 (h)-PR: sc-41155-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.