SANTA CRUZ BIOTECHNOLOGY, INC.

ABCG4 siRNA (h): sc-44489

BACKGROUND

ATP-binding cassette (ABC) transporters are an evolutionarily conserved family of proteins that catalyze the transport of molecules across extra- and intracellular membranes through the energy of ATP hydrolysis. The ABC gene family comprises seven subfamilies: ABC1, MDR/TAP, MRP, ALD, OABP, GCN20 and White. ABC proteins are either full molecules, with two nucleotide-binding folds (NBFs) and two sets of transmembrane domains (TMs), or half molecules, with one NBF and one set of TM domains. ABCG4, as well as all other half transporters, forms either a hetero- or homodimer in order to mediate transport function. ABCG4, a 646 amino acid protein, is important in macrophage lipid homeostasis, with the highest expression detected in brain, thymus, spleen and heart. The gene encoding for the ABCG4 protein maps to chromosome 11q23.3, a locus which includes several other genes involved in cholesterol and lipid metabolism. This locus also includes the locus for primary hypoalphalipoproteinemia.

REFERENCES

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2. Engel, T., Lorkowski, S., Lueken, A., Rust, S., Schluter, B., Berger, G., Cullen, P. and Assmann, G. 2001. The human ABCG4 gene is regulated by oxysterols and retinoids in monocyte-derived macrophages. Biochem. Biophys. Res. Commun. 288: 483-488.
3. Yoshikawa, M., Yabuuchi, H., Kuroiwa, A., Ikegami, Y., Sai, Y., Tamai, I., Tsuji, A., Matsuda, Y., Yoshida, H. and Ishikawa, T. 2002. Molecular and cytogenetic characterization of the mouse ATP-binding cassette transporter ABCG4. Gene 293: 67-75.
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CHROMOSOMAL LOCATION

Genetic locus: ABCG4 (human) mapping to 11q23.3.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

ABCG4 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 ABCG4 shRNA Plasmid (h): sc-44489-SH and ABCG4 shRNA (h) Lentiviral Particles: sc-44489-V as alternate gene silencing products.

For independent verification of ABCG4 (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-44489A, sc-44489B and sc-44489C.

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

ABCG4 siRNA (h) is recommended for the inhibition of ABCG4 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 ABCG4 gene expression knockdown using RT-PCR Primer: ABCG4 (h)-PR: sc-44489-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mallappa, S., Neeli, P.K., Karnewar, S. and Kotamraju, S. 2019. Doxorubicin induces prostate cancer drug resistance by upregulation of ABCG4 through GSH depletion and CREB activation: relevance of statins in chemosensitization. Mol. Carcinog. 58: 1118-1133.

RESEARCH USE

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