SANTA CRUZ BIOTECHNOLOGY, INC.

ABCA12 siRNA (m): sc-60110

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. ABCA12 (ATP-binding cassette, subfamily A, member 12) contains two transmembrane (TM) domains, each with six membrane-spanning segments, and two nucleotide-binding domains (NBDs), which are located in the cytoplasm. ABCA12 is expressed in normal human keratinocytes (RT-PCR reveals expression in placenta, testis, fetal brain, and skin) and is upregulated during keratinization. Immunoelectron microscopy reveals that the ABCA12 protein is located in lamellar granules in the upper epidermal keratinocytes of human skin. The ABCA12 gene, which synthesizes a 2,595-amino acid protein, may produce an alternative splice variant with an in-frame deletion leading to truncation of 79 amino acids.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607800. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
2. Annilo, T., et al. 2003. Identification and characterization of a novel ABCA subfamily member, ABCA12, located in the lamellar ichthyosis region on 2q34. Cytogenet. Genome Res. 98: 169-176.
3. Lefevre, C., et al. 2003. Mutations in the transporter ABCA12 are associated with lamellar ichthyosis type 2. Hum. Mol. Genet. 12: 2369-2378.
4. Akiyama, M., et al. 2005. Mutations in lipid transporter ABCA12 in harlequin ichthyosis and functional recovery by corrective gene transfer. J. Clin. Invest. 115: 1777-1784.
5. Kelsell, D.P., et al. 2005. Mutations in ABCA12 underlie the severe congenital skin disease harlequin ichthyosis. Am. J. Hum. Genet. 76: 794-803.
6. Akiyama, M., et al. 2006. Compound heterozygous mutations including a *de novo* missense mutation in ABCA12 led to a case of harlequin ichthyosis with moderate clinical severity. J. Invest. Dermatol. 126: 1518-1523.
7. Dereure, O. 2006. The role in harlequin ichthyosis of mutations in lipid transporter ABCA12. Ann. Dermatol. Venereol. 133: 97.
8. Rajpar, S.F., et al. 2006. A novel ABCA12 mutation underlying a case of Harlequin ichthyosis. Br. J. Dermatol. 155: 204-206.

CHROMOSOMAL LOCATION

Genetic locus: Abca12 (mouse) mapping to 1 C3.

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

ABCA12 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 ABCA12 shRNA Plasmid (m): sc-60110-SH and ABCA12 shRNA (m) Lentiviral Particles: sc-60110-V as alternate gene silencing products.

For independent verification of ABCA12 (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-60110A, sc-60110B and sc-60110C.

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

ABCA12 siRNA (m) is recommended for the inhibition of ABCA12 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 ABCA12 gene expression knockdown using RT-PCR Primer: ABCA12 (m)-PR: sc-60110-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.