SANTA CRUZ BIOTECHNOLOGY, INC.

ABCB5 siRNA (h): sc-89856

BACKGROUND

ATP-binding cassette (ABC) transporters are an evolutionarily conserved family of proteins that catalyze the transport of molecules across extracellular and intracellular membranes by harnessing the energy of ATP hydrolysis. ABCB5 (ATP-binding cassette sub-family B member 5), also known as P-glycoprotein ABCB5 or ABCB5 P-gp, is a 812 amino acid multi-pass membrane protein that belongs to the superfamily of ABC transporters. Expressed ubiquitously, ABCB5 contains two ABC transporter domains and one ABC transmembrane type-1 domain and is responsible for the resistance to doxorubicin of a subset of malignant melanomas. It is suggested ABCB5 inhibits tumor growth and is thought to be a novel drug transporter and chemoresistance mediator in melanoma cells. Two isoforms of ABCB5, designated α and β, exist due to alternative splicing events.

REFERENCES

1. Allikmets, R., et al. 1996. Characterization of the human ABC superfamily: isolation and mapping of 21 new genes using the expressed sequence tags database. Hum. Mol. Genet. 5: 1649-1655.
2. Saito, S., et al. 2002. Three hundred twenty-six genetic variations in genes encoding nine members of ATP-binding cassette, subfamily B (ABCB/MDR/TAP), in the Japanese population. J. Hum. Genet. 47: 38-50.
3. Frank, N.Y., et al. 2003. Regulation of progenitor cell fusion by ABCB5 P-glycoprotein, a novel human ATP-binding cassette transporter. J. Biol. Chem. 278: 47156-47165.
4. Frank, N.Y., et al. 2005. ABCB5-mediated doxorubicin transport and chemoresistance in human malignant melanoma. Cancer Res. 65: 4320-4333.
5. Chen, K.G., et al. 2005. Principal expression of two mRNA isoforms (ABCB5α and ABCB5β) of the ATP-binding cassette transporter gene ABCB5 in melanoma cells and melanocytes. Pigment Cell Res. 18: 102-112.
6. Zabierowski, S.E. and Herlyn, M. 2008. Learning the ABCs of melanoma-initiating cells. Cancer Cell 13: 185-187.
7. Hendig, D., et al. 2008. Gene expression profiling of ABC transporters in dermal fibroblasts of pseudoxanthoma elasticum patients identifies new candidates involved in PXE pathogenesis. Lab. Invest. 88: 1303-1315.

CHROMOSOMAL LOCATION

Genetic locus: ABCB5 (human) mapping to 7p21.1.

PRODUCT

ABCB5 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 ABCB5 shRNA Plasmid (h): sc-89856-SH and ABCB5 shRNA (h) Lentiviral Particles: sc-89856-V as alternate gene silencing products.

For independent verification of ABCB5 (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-89856A, sc-89856B and sc-89856C.

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

ABCB5 siRNA (h) is recommended for the inhibition of ABCB5 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.

GENE EXPRESSION MONITORING

ABCB5 (A-7): sc-515910 is recommended as a control antibody for monitoring of ABCB5 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ABCB5 gene expression knockdown using RT-PCR Primer: ABCB5 (h)-PR: sc-89856-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. Ge, X., et al. 2022. Chromium (VI)-induced ALDH1A1/EGF axis promotes lung cancer progression. Clin. Transl. Med. 12: e1136.

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.