

Mdr-3 siRNA (m): sc-37017

BACKGROUND

Cells selected for resistance to a single cytotoxic drug may become cross-resistant to a broad range of drugs with different structures and cellular targets. This phenomenon is called multiple drug resistance (MDR). MDR proteins (Mdrs) are members of a highly conserved superfamily of ATP-binding cassette transport proteins. Mdr-3, also known as ABCB4, is a member of the Mdr family that may be associated with a more malignant phenotype in B cell lymphocytic leukemias. The human Mdr-3 gene, which is known as ABCB4 maps to chromosome 7q21.12. The mouse homolog of Mdr-3 is designated Mdr-2.

REFERENCES

1. Banerjee, S., et al. 1992. Down-regulation of Ras and Myc expression associated with Mdr-1 overexpression in adriamycin-resistant tumor cells. *Cell. Mol. Biol.* 38: 561-570.
2. Gupta, S. and Gollapudi, S. 1993. P-glycoprotein (MDR 1 gene product) in cells of the immune system: its possible physiologic role and alteration in aging and human immunodeficiency virus-1 (HIV-1) infection. *J. Clin. Immunol.* 13: 289-301.
3. Zaman, G.J., et al. 1993. Analysis of the expression of MRP, the gene for a new putative transmembrane drug transporter, in human multidrug resistant lung cancer cell lines. *Cancer Res.* 53: 1747-1750.
4. Zaman, G.J., et al. 1994. The human multidrug resistance-associated protein MRP is a plasma membrane drug-efflux pump. *Proc. Natl. Acad. Sci. USA* 91: 8822-8826.
5. Alvarez, M., et al. 1995. Generation of a drug resistance profile by quantitation of Mdr-1/P-glycoprotein in the cell lines of the National Cancer Institute Anticancer Drug Screen. *J. Clin. Invest.* 95: 2205-2214.
6. Russo, D., et al. 1995. Mdr-related P170-glycoprotein modulates cytotoxic activity of homoharringtonine. *Leukemia* 9: 513-516.
7. Larkin, A., et al. 1999. A new monoclonal antibody that specifically recognizes the Mdr product. *Int. J. Cancer* 80: 265-271.
8. Larkin, A., et al. 1999. Preliminary immunocytochemical studies of Mdr-1 and Mdr-3 Pgp expression in B-cell leukaemias. *Adv. Exp. Med. Biol.* 457: 65-70.
9. Jun, K., et al. 2000. Insertion of a retroviral solo long terminal repeat in Mdr-3 locus disrupts mRNA splicing in mice. *Mamm. Genome* 11: 843-848.

CHROMOSOMAL LOCATION

Genetic locus: Abcb1a (mouse) mapping to 5 A1.

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

Mdr-3 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Mdr-3 shRNA Plasmid (m): sc-37017-SH and Mdr-3 shRNA (m) Lentiviral Particles: sc-37017-V as alternate gene silencing products.

For independent verification of Mdr-3 (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-37017A, sc-37017B and sc-37017C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Mdr-3 siRNA (m) is recommended for the inhibition of Mdr-3 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 μ M in 66 μ l. 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 Mdr-3 gene expression knockdown using RT-PCR Primer: Mdr-3 (m)-PR: sc-37017-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.