

MDR1 siRNA (h): sc-29395

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. MDR1 is an apical transmembrane protein that is an integral part of the blood-brain barrier and functions as a drug-transport pump transporting a variety of drugs from the brain back into the blood. The MDR1 gene is also known as ABCB1 and is located on human chromosome 7. The mouse homolog of MDR1 is known as Mdr-3. Interestingly, a murine protein by the name of Mdr-1 exists and is encoded by the murine *Abcb1b* gene, but it is not homologous with human Mdr-1.

CHROMOSOMAL LOCATION

Genetic locus: ABCB1 (human) mapping to 7q21.12.

PRODUCT

MDR1 siRNA (h) is a target-specific 19-25 nt siRNA 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 MDR1 shRNA Plasmid (h): sc-29395-SH and MDR1 shRNA (h) Lentiviral Particles: sc-29395-V as alternate gene silencing products.

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

MDR1 siRNA (h) is recommended for the inhibition of MDR1 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 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.

PROTOCOLS

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

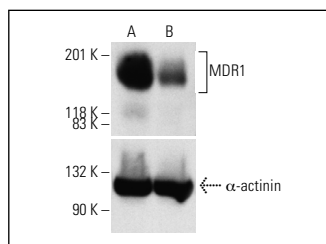
GENE EXPRESSION MONITORING

MDR1 (D-11): sc-55510 is recommended as a control antibody for monitoring of MDR1 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 MDR1 gene expression knockdown using RT-PCR Primer: MDR1 (h)-PR: sc-29395-PR (20 μ l, 485 bp). Annealing temperature for the primers should be $55-60^{\circ}$ C and the extension temperature should be $68-72^{\circ}$ C.

DATA



MDR1 siRNA (h): sc-29395. Western blot analysis of MDR1 expression in non-transfected control (A) and MDR1 siRNA transfected (B) HeLa cells. Blot probed with MDR1 (G-1): sc-13131. α -actinin (H-2): sc-17829 used as specificity and loading control.

SELECT PRODUCT CITATIONS

- Lemaire, S., et al. 2007. Modulation of the cellular accumulation and intracellular activity of daptomycin towards phagocytized *Staphylococcus aureus* by the P-glycoprotein (MDR1) efflux transporter in human THP-1 macrophages and madin-darby canine kidney cells. *Antimicrob. Agents Chemother.* 51: 2748-2757.
- Harazono, Y., et al. 2015. Extracellular galectin-3 programs multidrug resistance through Na^+/K^+ -ATPase and P-glycoprotein signaling. *Oncotarget* 6: 19592-19604.
- Takahashi, R., et al. 2016. Preclinical investigations of PM01183 (Lurbinectedin) as a single agent or in combination with other anticancer agents for clear cell carcinoma of the ovary. *PLoS ONE* 11: e0151050.
- von Neubeck, B., et al. 2018. An inhibitory antibody targeting carbonic anhydrase XII abrogates chemoresistance and significantly reduces lung metastases in an orthotopic breast cancer model *in vivo*. *Int. J. Cancer* 143: 2065-2075.
- Xu, H.B., et al. 2020. Z-guggulsterone regulates MDR1 expression mainly through the pregnane X receptor-dependent manner in human brain microvessel endothelial cells. *Eur. J. Pharmacol.* 874: 173023.

RESEARCH USE

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