SANTA CRUZ BIOTECHNOLOGY, INC.

ESM-1 siRNA (h): sc-40543

BACKGROUND

Endothelial cell specific molecule-1 (ESM-1) is a proteoglycan secreted by endothelial cells and its mRNA expression is regulated by inflammatory cytokines. The secreted form of ESM-1 is posttranslationally modified. ESM-1 is expressed in human lung and kidney tissues and is mainly localized in the vascular endothelium both *in vitro* and *in vivo*. ESM-1 binds directly to LFA-1, which is an $\alpha\beta$ heterodimeric transmembrane glycoprotein consisting of an αL subunit (CD11a) and a β2 subunit (CD18) onto the cell surface of human blood lymphocytes, monocytes and Jurkat cells. The major counterparts of LFA-1 are ICAM-1, ICAM-2 and ICAM-3. ESM-1 and ICAM-1 interact with LFA-1 on binding sites very close to but distinct from the I domain of CD11a, suggesting that ESM-1 may influence both the recruitment of circulating lymphocytes to the inflammatory sites and LFA-1 dependent leukocyte adhesion and activation.

REFERENCES

1. Hynes, R.O. 1992. Integrins: versatility, modulation, and signaling in cell adhesion. Cell 69: 11-25.
2. Diamond, M.S. and Springer. T.A. 1994. The dynamic regulation of integrin adhesiveness. Curr. Biol. 4: 506-517.
3. Lassalle, P., et al. 1996. ESM-1 is a novel human endothelial cell-specific molecule expressed in lung and regulated by cytokines. J. Biol. Chem. 271: 20458-20464.
4. Bechard, D., et al. 2000. Characterization of the secreted form of endothelial cell specific molecule-1 by specific monoclonal antibodies. J. Vasc. Res. 37: 417-425.

CHROMOSOMAL LOCATION

Genetic locus: ESM1 (human) mapping to 5q11.2.

PRODUCT

ESM-1 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 ESM-1 shRNA Plasmid (h): sc-40543-SH and ESM-1 shRNA (h) Lentiviral Particles: sc-40543-V as alternate gene silencing products.

For independent verification of ESM-1 (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-40543A, sc-40543B and sc-40543C.

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

ESM-1 siRNA (h) is recommended for the inhibition of ESM-1 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

ESM-1 (C-10): sc-515304 is recommended as a control antibody for monitoring of ESM-1 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ESM-1 gene expression knockdown using RT-PCR Primer: ESM-1 (h)-PR: sc-40543-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. Lee, W., et al. 2014. Endocan elicits severe vascular inflammatory responses *in vitro* and *in vivo*. J. Cell. Physiol. 229: 620-630.
2. Schelch, K., et al. 2018. FGF2 and EGF induce epithelial-mesenchymal transition in malignant pleural mesothelioma cells via a MAPKinase/MMP1 signal. Carcinogenesis 39: 534-545.

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.