

caveolin-1 siRNA (h): sc-29241

BACKGROUND

Caveolae (also known as plasmalemmal vesicles) are 50-100 nm flask-shaped membranes that represent a subcompartment of the plasma membrane. On the basis of morphological studies, caveolae have been implicated to function in the transcytosis of various macromolecules (including LDL) across capillary endothelial cells, the uptake of small molecules via potocytosis and the compartmentalization of certain signaling molecules, including G protein-coupled receptors. Three proteins, caveolin-1, caveolin-2 and caveolin-3, have been identified as principal components of caveolae. Two forms of caveolin-1, designated α and β , share a distinct but overlapping cellular distribution and differ by an amino-terminal 31 amino acid sequence which is absent from the β isoform. Caveolin-1 shares 31% identity with caveolin-2 and 65% identity with caveolin-3 at the amino acid level. Functionally, the three proteins differ in their interactions with heterotrimeric G protein isoforms.

CHROMOSOMAL LOCATION

Genetic locus: CAV1 (human) mapping to 7q31.2.

PRODUCT

caveolin-1 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 caveolin-1 shRNA Plasmid (h): sc-29241-SH and caveolin-1 shRNA (h) Lentiviral Particles: sc-29241-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

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

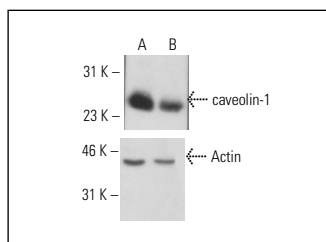
GENE EXPRESSION MONITORING

caveolin-1 (7C8): sc-53564 is recommended as a control antibody for monitoring of caveolin-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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor caveolin-1 gene expression knockdown using RT-PCR Primer: caveolin-1 (h)-PR: sc-29241-PR (20 μ l, 660 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



caveolin-1 siRNA (h): sc-29241. Western blot analysis of caveolin-1 expression in non-transfected control (A) and caveolin-1 siRNA transfected (B) HeLa cells. Blot probed with caveolin-1 (N-20): sc-894. Actin (I-19): sc-1616 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Tamai R., et al. 2005. Requirement for intercellular adhesion molecule 1 and caveolae in invasion of human oral epithelial cells by *Porphyromonas gingivalis*. Infect. Immun. 73: 6290-6298.
2. Padavano, J., et al. 2015. Mutant K-Ras promotes invasion and metastasis in pancreatic cancer through GTPase signaling pathways. Cancer Growth Metastasis 8: 95-113.
3. Shi, F., et al. 2016. The impact of simulated weightlessness on endothelium-dependent angiogenesis and the role of caveolae/caveolin-1. Cell. Physiol. Biochem. 38: 502-513.
4. Liu, Z., et al. 2017. Rho/ROCK pathway regulates migration and invasion of esophageal squamous cell carcinoma by regulating caveolin-1. Med. Sci. Monit. 23: 6174-6185.
5. Wee, P. and Wang, Z. 2018. Regulation of EGFR endocytosis by CBL during mitosis. Cells 7: 257.
6. Zhao, Y., et al. 2019. Peroxisome proliferator-activated receptor γ agonist rosiglitazone protects blood-brain barrier integrity following diffuse axonal injury by decreasing the levels of inflammatory mediators through a caveolin-1-dependent pathway. Inflammation 42: 841-856.

RESEARCH USE

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