SANTA CRUZ BIOTECHNOLOGY, INC.

Filamin 1 siRNA (h): sc-35374

BACKGROUND

Caldesmon, Filamin 1, Nebulin and Villin are differentially expressed and regulated Actin binding proteins. Both muscular (CDh) and non-muscular (CDl) forms of Caldesmon have been identified and each has been shown to bind to Actin as well as to calmodulin and Myosin. CDh is expressed predominantly on thin filaments in smooth muscle, whereas CDl is widely expressed in non-muscle tissues and cells. Filamin 1, which is ubiquitously expressed and exists as a homodimer, functions to crosslink Actin to filaments. Nebulin is a large filamentous protein specific to muscle tissue that may function as a ruler for filament length. Several isoforms of Nebulin are produced by alternative exon usage. Villin is Ca^{2+}-regulated and is the major structural component of the brush border of absorptive cells.

CHROMOSOMAL LOCATION

Genetic locus: FLNA (human) mapping to Xq28.

PRODUCT

Filamin 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 Filamin 1 shRNA Plasmid (h): sc-35374-SH and Filamin 1 shRNA (h) Lentiviral Particles: sc-35374-V as alternate gene silencing products.

For independent verification of Filamin 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-35374A, sc-35374B and sc-35374C.

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

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

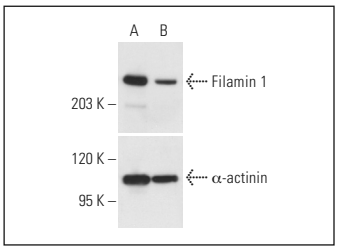
GENE EXPRESSION MONITORING

Filamin 1 (E-3): sc-17749 is recommended as a control antibody for monitoring of Filamin 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).

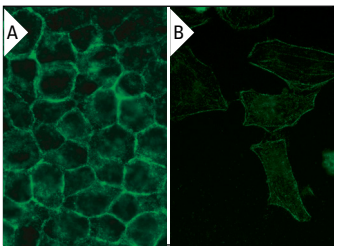
RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Filamin 1 gene expression knockdown using RT-PCR Primer: Filamin 1 (h)-PR: sc-35374-PR (20 µl, 527 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



Filamin 1 siRNA (h): sc-35374. Western blot analysis of Filamin 1 expression in non-transfected control (**A**) and Filamin 1 siRNA transfected (**B**) Jurkat cells. Blot probed with Filamin 1 (E-3): sc-17749. α-actinin (H-2): sc-17829 used as specificity and loading control.



Filamin 1 siRNA (h): sc-35374. Immunofluorescence staining of methanol-fixed, control HeLa (**A**) and Filamin 1 siRNA silenced HeLa (**B**) cells showing diminished peripheral cytoplasmic staining in the siRNA silenced cells. Cells probed with Filamin 1 (E-3): sc-17749.

SELECT PRODUCT CITATIONS

1. Deng, W., et al. 2012. Cytoskeletal protein filamin-A is a nucleolar protein that suppresses ribosomal RNA gene transcription. Proc. Natl. Acad. Sci. USA 109: 1524-1529.
2. Aizen, D., et al. 2018. Genome-wide analyses identify filamin-A as a novel downstream target for Insulin and IGF1 action. Front. Endocrinol. 9: 105.
3. Guo, R.H., et al. 2019. *Vibrio vulnificus* RtxA1 cytotoxin targets filamin-A to regulate PAK1- and MAPK-dependent cytoskeleton reorganization and cell death. Emerg. Microbes Infect. 8: 934-945.
4. Sharma, A., et al. 2020. Influenza A Virus nucleoprotein activates the JNK stress-signaling pathway for viral replication by sequestering host filamin-A protein. Front. Microbiol. 11: 581867.
5. Di Donato, M., et al. 2021. A small peptide targeting the ligand-induced androgen receptor/filamin A interaction inhibits the invasive phenotype of prostate cancer cells. Cells 11: 14.
6. Zheng, Y., et al. 2023. Deficiency of filamin A in smooth muscle cells protects against hypoxia-mediated pulmonary hypertension in mice. Int. J. Mol. Med. 51: 22.

RESEARCH USE

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