

Cofilin 2 siRNA (h): sc-37027

BACKGROUND

Cofilin 2, also known as CFL2 or Cofilin, muscle isoform, is a 166 amino acid protein that localizes to the cytoplasm and the cytoskeleton, as well as to the nuclear matrix, and contains one ADF-H domain. Existing as two alternatively spliced isoforms, one of which is known as CFL2a and is expressed in heart and skeletal muscle, and the other of which is known as CFL2b and is expressed ubiquitously, Cofilin 2 binds both F- and G-Actin and functions to control pH-dependent Actin polymerization and depolymerization. Cofilin 2 is subject to post-translational phosphorylation on Ser 24, an event which may prevent the nuclear localization of Cofilin 2. Defects in the gene encoding Cofilin 2 are the cause of nemaline myopathy type 7 (NEM7), a form of congenital myopathy that varies with age and is characterized by abnormal thread- or rod-like structures in muscle fibers.

REFERENCES

1. Gillett, G.T., et al. 1996. Mapping of human non-muscle type Cofilin (CFL1) to chromosome 11q13 and muscle-type Cofilin (CFL2) to chromosome 14. *Ann. Hum. Genet.* 60: 201-211.
2. Nebl, G., et al. 1996. Dephosphorylation of serine 3 regulates nuclear translocation of Cofilin. *J. Biol. Chem.* 271: 26276-26280.
3. Bamburg, J.R., et al. 1999. Putting a new twist on actin: ADF/Cofilins modulate Actin dynamics. *Trends Cell Biol.* 9: 364-370.
4. Thirion, C., et al. 2001. Characterization of human muscle type Cofilin (CFL2) in normal and regenerating muscle. *Eur. J. Biochem.* 268: 3473-3482.
5. Maciver, S.K., et al. 2002. The ADF/Cofilin family: Actin-remodeling proteins. *Genome Biol.* 3: reviews3007.

CHROMOSOMAL LOCATION

Genetic locus: CFL2 (human) mapping to 14q13.1.

PRODUCT

Cofilin 2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Cofilin 2 shRNA Plasmid (h): sc-37027-SH and Cofilin 2 shRNA (h) Lentiviral Particles: sc-37027-V as alternate gene silencing products.

For independent verification of Cofilin 2 (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-37027A, sc-37027B and sc-37027C.

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

Cofilin 2 siRNA (h) is recommended for the inhibition of Cofilin 2 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

Cofilin 2 (D-5): sc-166958 is recommended as a control antibody for monitoring of Cofilin 2 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 Cofilin 2 gene expression knockdown using RT-PCR Primer: Cofilin 2 (h)-PR: sc-37027-PR (20 μ l, 535 bp). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

SELECT PRODUCT CITATIONS

1. Jalal, S., et al. 2019. Actin cytoskeleton self-organization in single epithelial cells and fibroblasts under isotropic confinement. *J. Cell Sci.* 132: jcs220780.
2. Zeng, Q., et al. 2021. Cofilin 2 acts as an inflammatory linker between chronic periodontitis and Alzheimer's disease in amyloid precursor protein/Presenilin 1 mice. *Front. Mol. Neurosci.* 14: 728184.
3. Zhang, X., et al. 2022. Identification of serum biomarkers in patients with Alzheimer's disease by 2D-DIGE proteomics. *Gerontology* 68: 686-698.

RESEARCH USE

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