

# Profilin-2 siRNA (h): sc-78482

## BACKGROUND

Profilins (Profilin-1, Profilin-2 and Profilin-3) act as nucleotide exchange factors that use ATP to charge Actin, a process that regulates Actin polymerization by subsequently sequestering the Actin monomer. Profilin-2, also known as PFN2 or PFL, is a 140 amino acid protein that is ubiquitously expressed with highest expression in kidney, brain and skeletal muscle. Like other members of the Profilin family, Profilin-2 functions as an Actin monomer-binding protein that influences the structure of the cytoskeleton by regulating Actin polymerization in response to extracellular signals. High levels of Profilin-2 inhibit Actin polymerization, while lower levels enhance Actin polymerization, suggesting that the expression of Profilin-2 is regulated by the need for polymerization within the cell. Two isoforms of Profilin-2 exist due to alternative splicing events.

## REFERENCES

- Honore, B., et al. 1993. Cloning and expression of a novel human profilin variant, profilin II. *FEBS Lett.* 330: 151-155.
- Gieselmann, R., et al. 1995. Distinct biochemical characteristics of the two human profilin isoforms. *Eur. J. Biochem.* 229: 621-628.
- Nodelman, I.M., et al. 1999. X-ray structure determination of human profilin II: a comparative structural analysis of human profilins. *J. Mol. Biol.* 29: 1271-1285.
- Harbeck, B., et al. 2000. Phosphorylation of the vasodilator-stimulated phosphoprotein regulates its interaction with Actin. *J. Biol. Chem.* 275: 30817-30825.

## CHROMOSOMAL LOCATION

Genetic locus: PFN2 (human) mapping to 3q25.1.

## PRODUCT

Profilin-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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Profilin-2 shRNA Plasmid (h): sc-78482-SH and Profilin-2 shRNA (h) Lentiviral Particles: sc-78482-V as alternate gene silencing products.

For independent verification of Profilin-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-78482A, sc-78482B and sc-78482C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

Profilin-2 siRNA (h) is recommended for the inhibition of Profilin-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  $\mu$ M in 66  $\mu$ 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

Profilin-2 (4K-6): sc-100955 is recommended as a control antibody for monitoring of Profilin-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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 Profilin-2 gene expression knockdown using RT-PCR Primer: Profilin-2 (h)-PR: sc-78482-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Kim, M.J., et al. 2015. Profilin 2 promotes migration, invasion, and stemness of HT29 human colorectal cancer stem cells. *Biosci. Biotechnol. Biochem.* 79: 1438-1446.
- Joy, M., et al. 2017. The myocardin-related transcription factor MKL co-regulates the cellular levels of two profilin isoforms. *J. Biol. Chem.* 292: 11777-11791.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.