

CapZ- α 1 siRNA (h): sc-72787

BACKGROUND

The F-Actin family of capping proteins includes CapZ- α 1, CapZ- α 2, CapZ- α 3 and CapZ- β 3, all of which function in a calcium-dependent manner and bind to the fast growing barbed end of Actin filaments, thereby blocking protein exchange at these ends. The F-Actin capping protein complex is a heterodimer consisting of α and β subunits that caps the barbed ends of Actin filaments and nucleates the polymerization of Actin monomers, yet does not sever Actin filaments. CapZ- α 1, also known as F-Actin-capping protein subunit α -1, is a 286 amino acid subunit of the heterodimer that forms the F-Actin capping protein complex. CapZ- α 1 also has been shown to bind S-100 β chain, a signaling molecule involved in the calcium-sensitive assembly of intermediate filaments that has been linked to Alzheimer's disease.

REFERENCES

1. Casella, J.F., et al. 1994. Interaction of Cap Z with Actin. The NH₂-terminal domains of the α 1 and β subunits are not required for Actin capping, and α 1 β and α 2 β heterodimers bind differentially to actin. *J. Biol. Chem.* 269: 6992-6998.
2. Hart, M.C., et al. 1997. Vertebrates have conserved capping protein α isoforms with specific expression patterns. *Cell. Motil. Cytoskeleton* 38: 120-132.
3. Inman, K.G., et al. 2002. Solution NMR structure of S100B bound to the high-affinity target peptide TRTK-12. *J. Mol. Biol.* 324: 1003-1014.
4. Wear, M.A., et al. 2003. How capping protein binds the barbed end of the Actin filament. *Curr. Biol.* 13: 1531-1537.
5. Hutchings, N.J., et al. 2003. Linking the T cell surface protein CD2 to the Actin-capping protein CAPZ via CMS and CIN85. *J. Biol. Chem.* 278: 22396-22403.
6. Huang, S., et al. 2003. *Arabidopsis* capping protein (AtCP) is a heterodimer that regulates assembly at the barbed ends of Actin filaments. *J. Biol. Chem.* 278: 44832-44842.

CHROMOSOMAL LOCATION

Genetic locus: CAPZA1 (human) mapping to 1p13.2.

PRODUCT

CapZ- α 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CapZ- α 1 shRNA Plasmid (h): sc-72787-SH and CapZ- α 1 shRNA (h) Lentiviral Particles: sc-72787-V as alternate gene silencing products.

For independent verification of CapZ- α 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-72787A, sc-72787B and sc-72787C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support 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

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

CapZ- α 1 (2): sc-130309 is recommended as a control antibody for monitoring of CapZ- α 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-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 CapZ- α 1 gene expression knockdown using RT-PCR Primer: CapZ- α 1 (h)-PR: sc-72787-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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