SANTA CRUZ BIOTECHNOLOGY, INC.

LIMK-1 siRNA (h): sc-35810

BACKGROUND

Proteins containing LIM motifs are typically involved in cell fate determination and growth control. A family of proteins designated LIM kinases, incuding LIMK-1 and LIMK-2, has been identified. LIMK-1 has been shown to regulate the stabilization of F-Actin structures and Cofilin activity, indicating that LIMK-1 plays a role in a signaling pathway involved in the regulation of cell motility and morphogenesis. LIMK-1 inhibits neuronal differentiation of PC12 cells and is thought to act by interfering with events downstream of MAPK activation. Expression patterns of LIMK-1 and LIMK-2 suggest that these proteins may have different functions during development. A truncated form of LIMK-2 has been identified in adult testis that is thought to arise from an alternative initiation exon.

REFERENCES

1. Okano, I., et al. 1995. Identification and characterization of a novel family of serine/threonine kinases containing two N-terminal LIM motifs. J. Biol. Chem. 270: 31321-31330.
2. Nunoue, K., et al. 1995. LIMK-1 and LIMK-2, two members of a LIM motif-containing protein kinase family. Oncogene 11: 701-710.
3. Higuchi, O., et al. 1997. Inhibition of activated Ras-induced neuronal differentiation of PC12 cells by the LIM domain of LIM-kinase 1. Oncogene 14: 1819-1825.

CHROMOSOMAL LOCATION

Genetic locus: LIMK1 (human) mapping to 7q11.23.

PRODUCT

LIMK-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 LIMK-1 shRNA Plasmid (h): sc-35810-SH and LIMK-1 shRNA (h) Lentiviral Particles: sc-35810-V as alternate gene silencing products.

For independent verification of LIMK-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-35810A, sc-35810B and sc-35810C.

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

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

LIMK-1 (H-12): sc-515585 is recommended as a control antibody for monitoring of LIMK-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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 LIMK-1 gene expression knockdown using RT-PCR Primer: LIMK-1 (h)-PR: sc-35810-PR (20 µl, 419 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Vlecken, D.H. and Bagowski, C.P. 2009. LIMK1 and LIMK2 are important for metastatic behavior and tumor cell-induced angiogenesis of pancreatic cancer cells. Zebrafish 6: 433-439.
2. Borensztajn, K., et al. 2010. Coagulation factor Xa inhibits cancer cell migration via LIMK1-mediated Cofilin inactivation. Thromb. Res. 125: e323-e328.
3. Jang, I., et al. 2012. Pak1/LIMK1/Cofilin pathway contributes to tumor migration and invasion in human non-small cell lung carcinomas and cell lines. Korean J. Physiol. Pharmacol. 16: 159-165.
4. Lu, H., et al. 2018. Curcolonol suppresses the motility of breast cancer cells by inhibiting LIM kinase 1 to downregulate Cofilin 1 phosphorylation. Int. J. Oncol. 53: 2695-2704.
5. Fu, J., et al. 2018. *In vitro* inhibitory properties of sesquiterpenes from *Chloranthus serratus* on cell motility via down-regulation of LIMK1 activation in human breast cancer. Phytomedicine 49: 23-31.

RESEARCH USE

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