SANTA CRUZ BIOTECHNOLOGY, INC.

LHX3 siRNA (h): sc-38712

BACKGROUND

During development, genetically distinct subtypes of motor neurons express unique combinations of LIM-type homeodomain factors, which regulate cell migration and axon navigation. The LHX3 LIM homeodomain transcription factor is critical for neuron specification and pituitary development. LHX3 exists as two isoforms, LHX3a and LHX3b, that differ exclusively in their amino terminus, but share common LIM domains and a conserved homeodomain. The homeodomain contains three nuclear localization signals and serves as the nuclear matrix targeting sequence. Both LHX3a and LHX3b are localized to the nucleus and are mainly expressed in the adult pituitary gland, the spinal cord, and the lungs. The amino terminus of the short LHX3b isoform inhibits DNA binding and the transcriptional activity of the protein. Human LHX3 maps to the subtelomeric region of chromosome 9 at band 9q34.3, a region noted for chromosomal translocation and insertion events, which suggests a role for LHX3 in central nervous system developmental disorders.

REFERENCES

1. Sloop, K.W., et al. 1999. Differential activation of pituitary hormone genes by human LHX3 isoforms with distinct DNA binding properties. Mol. Endocrinol. 13: 2212-2225.
2. Parker, G.E., et al. 2000. The homeodomain coordinates nuclear entry of the LHX3 neuroendocrine transcription factor and association with the nuclear matrix. J. Biol. Chem. 275: 23891-23898.
3. Scmitt S., et al. 2000. Genomic structure, chromosomal localization, and expression pattern of the human LIM-homeobox3 (LHX3) gene. Biochem. Biophys. Res. Commun. 274: 49-56.
4. Sharma, K., et al. 2000. Genetic and epigenetic mechanisms contribute to motor neuron pathfinding. Nature 406: 515-519.
5. Sloop, K.W., et al. 2000. Analysis of the human LHX3 neuroendocrine transcription factor gene and mapping to the subtelomeric region of chromosome 9. Gene 245: 237-243.

CHROMOSOMAL LOCATION

Genetic locus: LHX3 (human) mapping to 9q34.3.

PRODUCT

LHX3 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 LHX3 shRNA Plasmid (h): sc-38712-SH and LHX3 shRNA (h) Lentiviral Particles: sc-38712-V as alternate gene silencing products.

For independent verification of LHX3 (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-38712A, sc-38712B and sc-38712C.

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 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

LHX3 siRNA (h) is recommended for the inhibition of LHX3 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

LHX3 (2C10): sc-293411 is recommended as a control antibody for monitoring of LHX3 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 LHX3 gene expression knockdown using RT-PCR Primer: LHX3 (h)-PR: sc-38712-PR (20 µl). 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.