SANTA CRUZ BIOTECHNOLOGY, INC.

LHX4 siRNA (h): sc-38714

BACKGROUND

The LIM domain (a zinc finger structure) is a protein-protein interaction motif found in several protein types, including homeodomain transcription factors and kinases, which has a role in many cellular processes. The LIM family of homeodomain proteins plays a role in organismal differentiation and development. Specifically, LHX4 and closely related LHX3 play essential roles in multiple developmental stages of the pituitary gland in mice. The LHX4 gene is expressed in murine fetal brain, spinal cord and cerebral cortex. In addition, Lhx4 is expressed in the cerebral cortex and in the motor neurons of the CNS in adult rodents. A specific murine LHX4 gene mutation results in a short stature phenotype, pituitary and cerebelllar defects and sella turcica malformations. The LHX4 gene may be implicated in the t(1;4)(q25;q32) chromosomal translocation, which is associated with acute lymphoblastic leukemia. The LHX4 gene is also expressed in leukemic cells and may activate leukemogenesis. The human LHX4 gene maps to chromosome 1q25.2 and encodes a 390 amino acid protein.

REFERENCES

1. Chen, B., et al. 1997. LIM homeobox genes family in nervous system. Sheng Li Ke Xue Jin Zhan 28: 24-28.
2. Sheng, H.Z., et al. 1997. Multistep control of pituitary organogenesis. Science 278: 1809-1812.
3. Bach, I. 2000. The LIM domain: regulation by association. Mech. Dev. 91: 5-17.
4. Machinis, K., et al. 2001. Syndromic short stature in patients with a germline mutation in the LIM homeobox LHX4. Am. J. Hum. Genet. 69: 961-968.
5. Liu, Y., et al. 2002. cDNA cloning, chromosomal localization and expression pattern analysis of human LIM-homeobox gene LHX4. Brain Res. 928: 147-155.
6. Kawamata, N., et al. 2002. A novel chromosomal translocation t(1;14)(q25;q32) in pre-B acute lymphoblastic leukemia involves the LIM homeodomain protein gene, LHX4. Oncogene 21: 4983-4991.

CHROMOSOMAL LOCATION

Genetic locus: LHX4 (human) mapping to 1q25.2.

PRODUCT

LHX4 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 LHX4 shRNA Plasmid (h): sc-38714-SH and LHX4 shRNA (h) Lentiviral Particles: sc-38714-V as alternate gene silencing products.

For independent verification of LHX4 (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-38714A, sc-38714B and sc-38714C.

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

LHX4 siRNA (h) is recommended for the inhibition of LHX4 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

LHX4 (E-10): sc-374562 is recommended as a control antibody for monitoring of LHX4 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 LHX4 gene expression knockdown using RT-PCR Primer: LHX4 (h)-PR: sc-38714-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.

PROTOCOLS

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