

LHX5 siRNA (h): sc-38716

BACKGROUND

During development, genetically distinct subtypes of motor neurons express unique combinations of LIM-type homeodomain factors, which regulate cell migration and guide motor axons to establish the fidelity of a binary choice in axonal trajectory. The LIM gene family encodes a set of gene products, which carry the LIM domain, a unique cysteine-rich zinc-binding domain. At least 40 members of this family have been identified in vertebrates and invertebrates, and are distributed into 4 groups according to the number of LIM domains and to the presence of homeodomains and kinase domains. The human LHX5 gene maps to chromosome 12q24.13 and encodes a 402 amino acid protein. The hippocampus contains the neural circuitry, which is crucial for cognitive functions such as learning and memory. LHX5 regulates precursor cell proliferation and neuronal differentiation and migration during hippocampal development.

REFERENCES

1. Lilly, B., et al. 1999. The LIM homeodomain protein dLIM1 defines a subclass of neurons within the embryonic ventral nerve cord of *Drosophila*. *Mech. Dev.* 88: 195-205.
2. Zhao, Y., et al. 1999. Control of hippocampal morphogenesis and neuronal differentiation by the LIM homeobox gene LHX5. *Science* 284: 1155-1158.
3. Cheah, S.S., et al. 2000. Requirement of LIM domains for LIM1 function in mouse head development. *Genesis* 27: 12-21.
4. Sharma, K., et al. 2000. Genetic and epigenetic mechanisms contribute to motor neuron pathfinding. *Nature* 406: 515-519.
5. Online Mendelian Inheritance in Man, OMIM[™]. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 605992. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. LocusLink Report (LocusID: 3975). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: LHX5 (human) mapping to 12q24.13.

PRODUCT

LHX5 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 LHX5 shRNA Plasmid (h): sc-38716-SH and LHX5 shRNA (h) Lentiviral Particles: sc-38716-V as alternate gene silencing products.

For independent verification of LHX5 (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-38716A, sc-38716B and sc-38716C.

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

LHX5 siRNA (h) is recommended for the inhibition of LHX5 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

LHX5 (KP-02): sc-130469 is recommended as a control antibody for monitoring of LHX5 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 LHX5 gene expression knockdown using RT-PCR Primer: LHX5 (h)-PR: sc-38716-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.