SANTA CRUZ BIOTECHNOLOGY, INC.

Dlx-1 siRNA (m): sc-143058

BACKGROUND

Dlx genes are a highly conserved family of six different (Dlx1-6) homeobox-containing genes that share homology with distal-less (Dll), a gene expressed in the head and limbs of the developing fruit fly. Dlx-1 (distal-less homeobox 1), also known as Distal-less, is a 255 amino acid protein that is essential for progenitors to differentiate into GABAergic (secreting or transmitting of γ-aminobutyric acid) neurons. Dlx proteins influence different stages of proper tissue development, including patterning of the orofacial skeleton (craniofacial ectomesenchyme) and differentiation of structures within and between teeth. Dlx-1 is expressed in spatially and temporally restricted patterns in craniofacial primordia, basal telencephalon and diencephalon, and in distal regions of extending appendages, including the limb and the genital bud. The differential expression of Dlx-1 influences patterning, morphogenesis and histogenesis in these tissues. Due to its ability to influence transcription, Dlx-1 is thought to regulate a transcriptional hierarchy that controls neuron versus oligodendroglial cell fate within a progenitor.

REFERENCES

1. Weiss, K.M., et al. 1995. Dlx and other homeobox genes in the morphological development of the dentition. Connect. Tissue Res. 32: 35-40.
2. Davideau, J.L., et al. 1999. Expression of Dlx-5 during human embryonic craniofacial development. Mech. Dev. 81: 183-186.
3. Depew, M.J., et al. 1999. Dlx-5 regulates regional development of the branchial arches and sensory capsules. Development 126: 3831-3846.
4. Eisenstat, D.D., et al. 1999. Dlx-1, Dlx-2, and Dlx-5 expression define distinct stages of basal forebrain differentiation. J. Comp. Neurol. 414: 217-237.
5. Bendall, A.J., et al. 2000. Roles for Msx and Dlx homeoproteins in vertebrate development. Gene 247: 17-31.
6. Merlo, G.R., et al. 2000. Multiple functions of Dlx genes. Int. J. Dev. Biol. 44: 619-626.
7. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 600029. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
8. Petryniak, M.A., et al. 2007. Dlx-1 and Dlx-2 control neuronal versus oligodendroglial cell fate acquisition in the developing forebrain. Neuron 55: 417-433.

CHROMOSOMAL LOCATION

Genetic locus: Dlx1 (mouse) mapping to 2 C2.

PRODUCT

Dlx-1 siRNA (m) is a target-specific 19-25 nt siRNA 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 Dlx-1 shRNA Plasmid (m): sc-143058-SH and Dlx-1 shRNA (m) Lentiviral Particles: sc-143058-V as alternate gene silencing 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

Dlx-1 siRNA (m) is recommended for the inhibition of Dlx-1 expression in mouse 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

Dlx-1 (F-16): sc-81959 is recommended as a control antibody for monitoring of Dlx-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 Dlx-1 gene expression knockdown using RT-PCR Primer: Dlx-1 (m)-PR: sc-143058-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.