SANTA CRUZ BIOTECHNOLOGY, INC.

HoxA4 siRNA (m): sc-75278

BACKGROUND

The Hox homeobox genes encode proteins that are transcriptional regulators with an established role in embryonic development. HoxA4 (homeobox A4), also known as Hox1D or Hox1, is a 320 amino acid protein that localizes to the nucleus and contains one homeobox DNA-binding domain. Expressed in the embryonic nervous system, HoxA4 functions as a sequence-specific DNA-binding transcription factor that is part of a regulatory mechanism that provides cells with positional identities during development. Via its ability to bind DNA, HoxA4 plays an important role in the regulation of gene expression, as well as morphogenesis and differentiation. The gene encoding HoxA4 maps to human chromosome 7, which houses over 1,000 genes and comprises nearly 5% of the human genome. Defects in some of the genes localized to chromosome 7 have been linked to Osteogenesis imperfecta, Williams-Beuren syndrome, Pendred syndrome, Lissencephaly, Citrullinemia and Shwachman-Diamond syndrome.

REFERENCES

1. Boncinelli, E., et al. 1989. Organization of human class I homeobox genes. Genome 31: 745-756.
2. Ferguson-Smith, A.C., et al. 1989. Isolation, chromosomal localization, and nucleotide sequence of the human Hox 1.4 homeobox. Genomics 5: 250-258.
3. Peverali, F.A., et al. 1990. Expression of Hox homeogenes in human neuroblastoma cell culture lines. Differentiation 45: 61-69.
4. Buettner, R., et al. 1991. Alteration of homeobox gene expression by N-ras transformation of PA-1 human teratocarcinoma cells. Mol. Cell. Biol. 11: 3573-3583.
5. Stelnicki, E.J., et al. 1998. Hox homeobox genes exhibit spatial and temporal changes in expression during human skin development. J. Invest. Dermatol. 110: 110-115.
6. Kosaki, K., et al. 2002. Complete mutation analysis panel of the 39 human Hox genes. Teratology 65: 50-62.

CHROMOSOMAL LOCATION

Genetic locus: Hoxa4 (mouse) mapping to 6 B3.

PRODUCT

HoxA4 siRNA (m) 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 HoxA4 shRNA Plasmid (m): sc-75278-SH and HoxA4 shRNA (m) Lentiviral Particles: sc-75278-V as alternate gene silencing products.

For independent verification of HoxA4 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-75278A, sc-75278B and sc-75278C.

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

HoxA4 siRNA (m) is recommended for the inhibition of HoxA4 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

HoxA4 (H-4): sc-515418 is recommended as a control antibody for monitoring of HoxA4 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 HoxA4 gene expression knockdown using RT-PCR Primer: HoxA4 (m)-PR: sc-75278-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.