SANTA CRUZ BIOTECHNOLOGY, INC.

HoxA3 siRNA (m): sc-38676

BACKGROUND

The Hox proteins play a role in development and cellular differentiation by regulating downstream target genes. Specifically, the Hox proteins direct DNA-protein and protein-protein interactions that assist in determining the morphologic features associated with the anterior-posterior body axis. The mammalian HOX gene complex consists of 39 genes that are located on 4 linkage groups, which are dispersed over 4 chromosomes. HOX genes that occupy the same relative position along the 5' to 3' coordinate *(trans*-prime paralogous genes) are more similar in sequence and expression pattern than adjacent HOX genes on the same chromosome. HoxA3, in conjunction with Pax1, mediates the development of the thymus, parathyroid gland and carotid body. Its expression in the third pharyngeal arch and pouch is required for development of the third arch artery, and homozygous null HoxA3 mutants lack the carotid body. HoxA3 also regulates hindbrain development by controlling the axon projection pattern of motor neurons and sensory neurons of the proximal and distal ganglia.

REFERENCES

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2. Greer, J.M., et al. 2000. Maintenance of functional equivalence during paralogous Hox gene evolution. Nature 403: 661-665.
3. Su, D.M., et al. 2000. HoxA3 and Pax1 transcription factors regulate the ability of fetal thymic epithelial cells to promote thymocyte development. J. Immunol. 164: 5753-5760.
4. Manzanares, M., et al. 2001. Independent regulation of initiation and maintenance phases of HoxA3 expression in the vertebrate hindbrain involve auto- and cross-regulatory mechanisms. Development 128: 3595-3607.
5. Su, D., et al. 2001. HoxA3 and Pax1 regulate epithelial cell death and proliferation during thymus and parathyroid organogenesis. Dev. Biol. 236: 316-329.
6. Watari, N., et al. 2001. HoxA3 regulates integration of glossopharyngeal nerve precursor cells. Dev. Biol. 240: 15-31.
7. Kameda, Y., et al. 2002. Homeobox gene HoxA3 is essential for the formation of the carotid body in the mouse embryos. Dev. Biol. 247: 197-209.
8. Kameda, Y., et al. 2004. Disruption of the HoxA3 homeobox gene results in anomalies of the carotid artery system and the arterial baroreceptors. Cell Tissue Res. 311: 343-352.

CHROMOSOMAL LOCATION

Genetic locus: Hoxa3 (mouse) mapping to 6 B3.

PROTOCOLS

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

PRODUCT

HoxA3 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 HoxA3 shRNA Plasmid (m): sc-38676-SH and HoxA3 shRNA (m) Lentiviral Particles: sc-38676-V as alternate gene silencing products.

For independent verification of HoxA3 (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-38676A, sc-38676B and sc-38676C.

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

HoxA3 siRNA (m) is recommended for the inhibition of HoxA3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HoxA3 gene expression knockdown using RT-PCR Primer: HoxA3 (m)-PR: sc-38676-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.