SANTA CRUZ BIOTECHNOLOGY, INC.

HoxA3 siRNA (h): sc-38675

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*-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

1. Manley, N.R. and Capecchi, M.R. 1997. Hox group 3 paralogous genes act synergistically in the formation of somitic and neural crest-derived structures. Dev. Biol. 192: 274-288.
2. Greer, J.M., et al. 2000. Maintenance of functional equivalence during paralogous Hox gene evolution. Nature 403: 661-665.
3. Su, D.M. and Manley, N.R. 2000. HoxA3 and Pax-1 transcription factors regulate the ability of fetal thymic epithelial cells to promote thymocyte development. J. Immunol. 164: 5753-5760.

CHROMOSOMAL LOCATION

Genetic locus: HOXA3 (human) mapping to 7p15.2.

PRODUCT

HoxA3 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 HoxA3 shRNA Plasmid (h): sc-38675-SH and HoxA3 shRNA (h) Lentiviral Particles: sc-38675-V as alternate gene silencing products.

For independent verification of HoxA3 (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-38675A, sc-38675B and sc-38675C.

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 (h) is recommended for the inhibition of HoxA3 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

HoxA3 (F-7): sc-374237 is recommended as a control antibody for monitoring of HoxA3 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 HoxA3 gene expression knockdown using RT-PCR Primer: HoxA3 (h)-PR: sc-38675-PR (20 µl, 470 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhang, X., et al. 2018. HoxA3 promotes tumor growth of human colon cancer through activating EGFR/Ras/Raf/MEK/ERK signaling pathway. J. Cell. Biochem. 119: 2864-2874.
2. Lin, S., et al. 2019. LncRNA HOXA-AS3 confers cisplatin resistance by interacting with HoxA3 in non-small-cell lung carcinoma cells. Oncogenesis 8: 60.

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.