SANTA CRUZ BIOTECHNOLOGY, INC.

# HoxA1 siRNA (h): sc-35583

## BACKGROUND

Hox genes play a fundamental role in the development of the vertebrate central nervous system, heart, axial skeleton, limbs, gut, urogenital tract and external genitalia. The homeobox gene HoxA1 is transcriptionally regulated by retinoic acid (RA) and encodes a transcription factor which has been shown to play important roles in cell differentiation and embryogenesis. HoxA1 is also expressed in cancers, such as mammary tumors, though it is not expressed in normal gland or in precancerous mammary tissues. At embryonic stages, HoxA2 is expressed in the mesenchyme and epithelial cells of the palate, however its expression is restricted to the tips of the growing palatal shelves. HoxA2 protein is predominantly expressed in the nuclei of cells in the ventral mantle region of the developing embryo. In the developing and adult mouse spinal cord, HoxA2 protein may contribute to dorsal-ventral patterning and/or to the specification of neuronal phenotype. HoxA7 functions as a potent transcriptional repressor and its action as such requires several domains, including both activator and repressor regions. HoxA7 is expressed in the fetal liver, lung, skeletal muscle, kidney, pancreas and placenta.

## REFERENCES


1. Schnabel, C.A., et al. 1996. Repression by HoxA7 is mediated by the homeodomain and the modulatory action of its N-terminal-arm residues. Mol. Cell. Biol. 16: 2678-2688.
2. Srebrow, A., et al. 1998. Expression of HoxA1 and HoxB7 is regulated by extracellular matrix-dependent signals in mammary epithelial cells. J. Cell Biol. 69: 377-391.
3. Hao, Z., et al. 1999. Differential expression of HoxA2 protein along the dorsal-ventral axis of the developing and adult mouse spinal cord. Dev. Dyn. 216: 201-217.
4. Kim, M.H., et al. 2000. Sequence analysis and tissue specific expression of human HOXA7. Mol. Biotechnol 14: 19-24.
5. Shen, J., et al. 2000. Molecular cloning and analysis of a group of genes differentially expressed in cells which overexpress the HoxA1 homeobox gene. Exp. Cell Res. 259: 274-283.
6. Nazarali, A., et al. 2000. Temporal and spatial expression of HoxA2 during murine palatogenesis. Cell. Mol. Neurobiol. 20: 269-290.


## CHROMOSOMAL LOCATION

Genetic locus: HOXA1 (human) mapping to 7p15.2.

## PRODUCT

HoxA1 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 HoxA1 shRNA Plasmid (h): sc-35583-SH and HoxA1 shRNA (h) Lentiviral Particles: sc-35583-V as alternate gene silencing products.

For independent verification of HoxA1 (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-35583A, sc-35583B and sc-35583C.

## 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

HoxA1 siRNA (h) is recommended for the inhibition of HoxA1 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

HoxA1 (1E10): sc-293257 is recommended as a control antibody for monitoring of HoxA1 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 HoxA1 gene expression knockdown using RT-PCR Primer: HoxA1 (h)-PR: sc-35583-PR (20 µl, 438 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Chen, D., et al. 2013. MicroRNA-99 family members suppress Homeobox A1 expression in epithelial cells. PLoS ONE 8: e80625.


## RESEARCH USE

For research use only, not for use in diagnostic procedures.