SANTA CRUZ BIOTECHNOLOGY, INC.

# HMX2 siRNA (h): sc-90463

## BACKGROUND

The homeobox DNA-binding domain is a 60 amino acid motif that is conserved among many species and functions to bind DNA via a helix-turn-helix structure, thereby playing a role in transcriptional regulation and the control of gene expression. HMX2 (H6 family homeobox 2), also known as H6L or Nkx5-2, is a 273 amino acid nuclear protein that belongs to the HMX homeobox family and contains one homeobox DNA-binding domain. HMX2 functions as a transcription factor that assists in specification of neuronal cell types and is essential for proper development of hypothalamus and inner ear. Hemizygous deletions of the gene encoding HMX2 are thought to lead to vestibular dysfunction, inner ear malformations and congenital sensorineural hearing loss.

## REFERENCES


1. Garcia-Fernández, J. and Holland, P.W. 1994. Archetypal organization of the amphioxus Hox gene cluster. Nature 370: 563-566.
2. Stadler, H.S., et al. 1995. Phylogenetic conservation and physical mapping of members of the H6 homeobox gene family. Mamm. Genome 6: 383-388.
3. Wang, W., et al. 2000. Hmx: an evolutionary conserved homeobox gene family expressed in the developing nervous system in mice and *Drosophila*. Mech. Dev. 99: 123-137.
4. Wang, W., et al. 2001. HMX2 homeobox gene control of murine vestibular morphogenesis. Development 128: 5017-5029.
5. Wang, W., et al. 2004. HMX2 and HMX3 homeobox genes direct development of the murine inner ear and hypothalamus and can be functionally replaced by *Drosophila* Hmx. Dev. Cell 7: 439-453.
6. Miller, N.D., et al. 2009. Molecular (SNP) analyses of overlapping hemizygous deletions of 10q25.3 to 10qter in four patients: evidence for HMX2 and HMX3 as candidate genes in hearing and vestibular function. Am. J. Med. Genet. A 149A: 669-680.
7. Online Mendelian Inheritance in Man, OMIM™. 2011. Johns Hopkins University, Baltimore, MD. MIM Number: 600647. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/


## CHROMOSOMAL LOCATION

Genetic locus: HMX2 (human) mapping to 10q26.13.

## PRODUCT

HMX2 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 HMX2 shRNA Plasmid (h): sc-90463-SH and HMX2 shRNA (h) Lentiviral Particles: sc-90463-V as alternate gene silencing products.

For independent verification of HMX2 (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-90463A, sc-90463B and sc-90463C.

## RESEARCH USE

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

## 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

HMX2 siRNA (h) is recommended for the inhibition of HMX2 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HMX2 gene expression knockdown using RT-PCR Primer: HMX2 (h)-PR: sc-90463-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## PROTOCOLS

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