

IRX4 siRNA (h): sc-38705

BACKGROUND

The Iroquois homeobox gene family of transcription factors regulate aspects of embryonic development including anterior/posterior and dorsal/ventral axis patterning in the central nervous system. The Iroquois family are clustered on two loci, IRXA and IRXB, which map to chromosomes 8 and 13 in mice. The IRXA group includes *Irx1*, *Irx2* and *Irx4*; the IRXB group is comprised of *Irx3*, *Irx5* and *Irx6*. *Irx1* and *Irx2* are both widely expressed during development in the lung epithelium and also in the ventricular septum. *Irx1* and *Irx2* also play a role in digit formation (E11.5-E14.5). The *Irx* gene family members are each expressed in a distinct pattern during mouse heart development. Specifically, *Irx1* and *Irx2* are expressed in the ventricular septum and *Irx3* is expressed in the ventricular trabeculated myocardium. In addition, *Irx4* is expressed in the linear heart tube and the AV canal, and *Irx5* is expressed in the endocardium lining the ventricular and atrial myocardium. Furthermore, the IRX4 gene may modulate cardiac development and function. Although the heart of *Irx4*^{-/-} mice appears to develop normally, adult *Irx4*^{-/-} mice exhibit cardiomyopathy, including cardiac hypertrophy and decreased contractility.

REFERENCES

- Christoffels, V.M., et al. 2000. Patterning the embryonic heart: identification of five mouse Iroquois homeobox genes in the developing heart. *Dev. Biol.* 224: 263-274.
- Bruneau, B.G., et al. 2001. Cardiomyopathy in *Irx4*-deficient mice is preceded by abnormal ventricular gene expression. *Mol. Cell. Biol.* 21: 1730-1736.
- Mummenhoff, J., et al. 2001. Expression of *Irx6* during mouse morphogenesis. *Mech. Dev.* 103: 193-195.
- Ogura, K., et al. 2001. Cloning and chromosome mapping of human and chicken Iroquois (IRX) genes. *Cytogenet. Cell Genet.* 92: 320-325.
- Becker, M.B., et al. 2001. *Irx1* and *Irx2* expression in early lung development. *Mech. Dev.* 106: 155-158.
- Zulch, A., et al. 2001. Expression pattern of *Irx1* and *Irx2* during mouse digit development. *Mech. Dev.* 106: 159-162.
- Online Mendelian Inheritance in Man, OMIM[™]. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 606197. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: IRX4 (human) mapping to 5p15.33.

PRODUCT

IRX4 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see IRX4 shRNA Plasmid (h): sc-38705-SH and IRX4 shRNA (h) Lentiviral Particles: sc-38705-V as alternate gene silencing products.

For independent verification of IRX4 (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-38705A, sc-38705B and sc-38705C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

IRX4 siRNA (h) is recommended for the inhibition of IRX4 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 μ M in 66 μ l. 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 IRX4 gene expression knockdown using RT-PCR Primer: IRX4 (h)-PR: sc-38705-PR (20 μ l). 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.

PROTOCOLS

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