

Six6 siRNA (h): sc-38792

BACKGROUND

The Six proteins (sine oculis) are a family of homeodomain transcription factors that share a conserved DNA binding domain. Two of these family members Six3 and Six6 (also designated Optx2 and Six9) are required for the specification and proliferation of the eye field in vertebrates, and, therefore, are the vertebrate homologues most closely related to the *Drosophila* sine oculis protein, which has an essential role in controlling compound eye development. Six3 and Six6 expression largely overlap during development of specific tissues, such as retina, hypothalamus, and pituitary. The human Six6 gene maps to chromosome 14q23.1. Haploinsufficiency of Six6 may cause several developmental disorders, including bilateral anophthalmia and pituitary anomalies. The gene encoding the human Six3 protein maps to chromosome 2p21, a region associated with holoprosencephaly type 2 (HPE2). Deletion of Six3 may be associated with HPE2 disorder, a common, severe malformation of the brain that results from incomplete cleavage of the forebrain during early embryogenesis.

REFERENCES

1. Kawakami, K., et al. 1996. Identification and expression of six family genes in mouse retina. *FEBS Lett.* 393: 259-263.
2. Gallardo, M.E., et al. 1999. Genomic cloning and characterization of the human homeobox gene SIX6 reveals a cluster of SIX genes in chromosome 14 and associates SIX6 hemizygosity with bilateral anophthalmia and pituitary anomalies. *Genomics* 61: 82-91.
3. Leppert, G.S., et al. 1999. Sequence and location of SIX3, a homeobox gene expressed in the human eye. *Ophthalmic Genet.* 20: 7-21.
4. Lopez-Rios, J., et al. 1999. Six9 (Optx2), a new member of the six gene family of transcription factors, is expressed at early stages of vertebrate ocular and pituitary development. *Mech. Dev.* 83: 155-159.
5. Pasquier, L., et al. 2000. A new mutation in the six-domain of SIX3 gene causes holoprosencephaly. *Eur. J. Hum. Genet.* 8: 797-800.
6. Lopez-Rios, J., et al. 2003. Six3 and Six6 activity is modulated by members of the groucho family. *Development* 130: 185-195.

CHROMOSOMAL LOCATION

Genetic locus: SIX6 (human) mapping to 14q23.1.

PRODUCT

Six6 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 Six6 shRNA Plasmid (h): sc-38792-SH and Six6 shRNA (h) Lentiviral Particles: sc-38792-V as alternate gene silencing products.

For independent verification of Six6 (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-38792A, sc-38792B and sc-38792C.

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

Six6 siRNA (h) is recommended for the inhibition of Six6 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 Six6 gene expression knockdown using RT-PCR Primer: Six6 (h)-PR: sc-38792-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.