

# Chx10 siRNA (m): sc-142339

## BACKGROUND

Chx10, for *ceh-10* homeodomain containing homolog, is also known as RET1 and HOX10 and is closely related to the homeodomain of the homeobox gene *ceh-10* from the nematode *Caenorhabditis elegans*. Chx10 is an essential component in the network of genes required for the development of the mammalian eye, with profound effects on retinal progenitor proliferation and bipolar cell specification or differentiation. Chx10 is expressed in the early retinal neuroepithelium, is restricted to bipolar cells and is maintained at a low level in bipolar cells of the mature retina. Human CHX10 is also expressed in the inner nuclear layer of the mature retina. Expression patterns implicate critical roles in the formation of the neuroretina and in the development and maintenance of the inner nuclear layer. Chx10 is expressed at high levels in uncommitted retinal progenitor cells and mature bipolar cells.

## REFERENCES

1. Liu, I.S., et al. 1994. Developmental expression of a novel murine homeobox gene (Chx10): evidence for roles in determination of the neuroretina and inner nuclear layer. *Neuron* 13: 377-393.
2. Svendsen, P.C., et al. 1995. The *C. elegans* neuronally expressed homeobox gene *ceh-10* is closely related to genes expressed in the vertebrate eye. *Development* 121: 1253-1262.
3. Burmeister, M., et al. 1996. Ocular retardation mouse caused by Chx10 homeobox null allele: impaired retinal progenitor proliferation and bipolar cell differentiation. *Nat. Genet.* 12: 376-384.
4. Chen, C.M., et al. 2000. Expression of Chx10 and Chx10-1 in the developing chicken retina. *Mech. Dev.* 90: 293-297.
5. Ferda Percin, E., et al. 2000. Human microphthalmia associated with mutations in the retinal homeobox gene Chx10. *Nat. Genet.* 25: 397-401.
6. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2000. Johns Hopkins University, Baltimore, MD. MIM Number: 142993. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: Vsx2 (mouse) mapping to 12 D1.

## PRODUCT

Chx10 siRNA (m) 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Chx10 shRNA Plasmid (m): sc-142339-SH and Chx10 shRNA (m) Lentiviral Particles: sc-142339-V as alternate gene silencing products.

For independent verification of Chx10 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-142339A, sc-142339B and sc-142339C.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

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

## APPLICATIONS

Chx10 siRNA (m) is recommended for the inhibition of Chx10 expression in mouse 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  $\mu$ M in 66  $\mu$ 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.

## GENE EXPRESSION MONITORING

Chx10 (E-12): sc-365519 is recommended as a control antibody for monitoring of Chx10 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Chx10 gene expression knockdown using RT-PCR Primer: Chx10 (m)-PR: sc-142339-PR (20  $\mu$ 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.