SANTA CRUZ BIOTECHNOLOGY, INC.

FOXN4 siRNA (m): sc-62344

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The human gene FOXN4 encodes for a 476 amino acid nuclear protein designated FOXN4. FOXN4 cooperates with key retinogenic factors to mediate the multipotent differentiation of retinal progenitors and is believed to regulate neuronal subtype diversification. FOXN4 is expressed in a subset of mitotic progenitors during retinogenesis. As such, FOXN4 controls the formation of amacrine and horizontal cells by activating the expression of the retinogenic factors MATH-3, Neuro D and PROX1. During spinal neurogenesis, the p2 progenitor domain gives rise to two intermingled distinct subtypes of interneurons, termed V2a and V2b. FOXN4 is coexpressed with the bHLH factor ASH1 (Mash1) in a subset of p2 progenitors. Functionality of FOXN4 affects ASH1 expression and regulates interneuronal formation accordingly. Over-expression of FOXN4 alone in spinal neural progenitors promotes the V2a fate at the expense of the V2b fate, whereas ASH1 suppresses both the V2a and V2b fates.

REFERENCES

1. Schorpp, M., et al. 2002. A zebrafish orthologue (whnb) of the mouse nude gene is expressed in the epithelial compartment of the embryonic thymic rudiment. Mech. Dev. 118: 179-185.
2. Kay, J.N. and Baier, H. 2004. Out-foxing fate; molecular switches create neuronal diversity in the retina. Neuron 43: 759-760.
3. Li, S., et al. 2004. FOXN4 controls the genesis of amacrine and horizontal cells by retinal progenitors. Neuron 43: 795-807.
4. Katoh, M. and Katoh, M. 2004. Human FOX gene family (Review). Int. J. Oncol. 25: 1495-1500.
5. Katoh, M. and Katoh, M. 2004. Characterization of human FOXN4 gene in silico. Int. J. Mol. Med. 14: 949-953.
6. Danilova, N., et al. 2004. Expression of the winged helix/forkhead gene, FOXN4, during zebrafish development. Brain Res. Dev. Brain Res. 153: 115-119.
7. Li, S., et al. 2005. FOXN4 acts synergistically with Mash1 to specify subtype identity of V2 interneurons in the spinal cord. Proc. Natl. Acad. Sci. USA 102: 10688-10693.

CHROMOSOMAL LOCATION

Genetic locus: Foxn4 (mouse) mapping to 5 F.

PRODUCT

FOXN4 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see FOXN4 shRNA Plasmid (m): sc-62344-SH and FOXN4 shRNA (m) Lentiviral Particles: sc-62344-V as alternate gene silencing products.

For independent verification of FOXN4 (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-62344A, sc-62344B and sc-62344C.

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

FOXN4 siRNA (m) is recommended for the inhibition of FOXN4 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 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

FOXN4 (H-2): sc-390456 is recommended as a control antibody for monitoring of FOXN4 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 FOXN4 gene expression knockdown using RT-PCR Primer: FOXN4 (m)-PR: sc-62344-PR (20 µl). 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.