SANTA CRUZ BIOTECHNOLOGY, INC.

FOXN1 siRNA (m): sc-38612

BACKGROUND

The Fox family of transcription factors is a large group of proteins that share a common DNA binding domain termed a winged-helix or forkhead domain. FOXN1, also designated Transcription factor winged-nude (WHN), is required for keratinocyte growth, as well as differentiation of epithelial progenitor cells in the thymic primordium into subcapsular, cortical, and medullary epithelial cells of the mature thymus. Mutations in the FOXN1 gene are responsible for nude, immune-deficient mice and rats. These nude mice are useful as hosts for xenografts in cancer research. The promoters for FOXN1 are active in the skin and thymus reflecting the critical role FOXN1 plays in the proper development of these tissues. Secreted Wnt glycoproteins appear to regulate FOXN1 transcription in the thymus. FOXN1 is expressed in the embryonic thymus after the common primordium is formed, beginning at E11.25. FOXN1 is also expressed at very low levels in normal human kidney and thyroid gland. In human, it is also expressed in the differentiating cells of the hair follicle precortex, the innermost layer of the outer root sheath, and the thymus.

REFERENCES

1. Nehls, M., et al. 1994. New member of the winged-helix protein family disrupted in mouse and rat nude mutations. Nature 372: 103-107.
2. Segre, J.A., et al. 1995. Positional cloning of the nude locus: genetic, physical, and transcription maps of the region and mutations in the mouse and rat. Genomics 28: 549-559.
3. Schorpp, M., et al. 1997. Characterization of mouse and human nude genes. Immunogenetics 46: 509-515.
4. Gattenlohner, S., et al. 1999. Transcription of the nude gene (WHN) in human normal organs and mediastinal and pulmonary tumors. Pathol. Res. Pract. 195: 571-574.
5. Gordon, J., et al. 2001. Gcm2 and FOXN1 mark early parathyroid- and thymus-specific domains in the developing third pharyngeal pouch. Mech. Dev. 103: 141-143.
6. Balciunaite, G., et al. 2002. Wnt glycoproteins regulate the expression of FOXN1, the gene defective in nude mice. Nat. Immunol. 3: 1102-1108.

CHROMOSOMAL LOCATION

Genetic locus: Foxn1 (mouse) mapping to 11 B5.

PRODUCT

FOXN1 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 FOXN1 shRNA Plasmid (m): sc-38612-SH and FOXN1 shRNA (m) Lentiviral Particles: sc-38612-V as alternate gene silencing products.

For independent verification of FOXN1 (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-38612A, sc-38612B and sc-38612C.

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

FOXN1 siRNA (m) is recommended for the inhibition of FOXN1 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

FOXN1 (E-3): sc-271256 is recommended as a control antibody for monitoring of FOXN1 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 FOXN1 gene expression knockdown using RT-PCR Primer: FOXN1 (m)-PR: sc-38612-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.