SANTA CRUZ BIOTECHNOLOGY, INC.

FOXK1 siRNA (h): sc-60657

BACKGROUND

The FOX family of transcription factors share a common DIUA binding domain termed a winged-helix or forkhead domain. Many FOX proteins play important roles in development, metabolism, cancer and aging. In skeletal muscles, undifferentiated myogenic stem cells (satellite cells) can mobilize to regenerate myofibers in response to injury. FOXK1 is expressed in these cells and regulates cell cycle progression through an interaction with its downstream target, the cyclin-dependent kinase inhibitor p21 (CIP). Loss of FOXK1 in mice results in growth retardation and a severe impairment in skeletal muscle regeneration following injury. FOXK1 also shows expression in immature tissues of brain, eye, heart, lung and thymus. It also is predominantly expressed in many malignant tissues, such as tumors of the brain, colon and lymph node.

REFERENCES

1. Garry, D.J., et al. 1997. Persistent expression of MNF identifies myogenic stem cells in postnatal muscles. Dev. Biol. 188: 280-294.
2. Yang, Q., et al. 1997. Transient expression of a winged-helix protein, MNF-β, during myogenesis. Mol. Cell. Biol. 17: 5236-5243.
3. Yang, Q., et al. 2000. The winged-helix/forkhead protein myocyte nuclear factor β (MNF-β) forms a co-repressor complex with mammalian sin3B. Biochem. J. 345: 335-343.
4. Zhang, Q., et al. 2002. The gene for the muted μ mouse, a model for Hermansky-Pudlak syndrome, defines a novel protein which regulates vesicle trafficking. Hum. Mol. Genet. 11: 697-706.
5. Hawke, T.J., et al. 2003. Absence of $p21^{CIP}$ rescues myogenic progenitor cell proliferative and regenerative capacity in FOXK1 null mice. J. Biol. Chem. 278: 4015-4020.
6. Huang, J.T. and Lee, V. 2004. Identification and characterization of a novel human FOXK1 gene in silico. Int. J. Oncol. 25: 751-757.
7. Meeson, A.P., et al. 2004. Cellular and molecular regulation of skeletal muscle side population cells. Stem Cells 22: 1305-1320.

CHROMOSOMAL LOCATION

Genetic locus: FOXK1 (human) mapping to 7p22.1.

PRODUCT

FOXK1 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 μM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see FOXK1 shRNA Plasmid (h): sc-60657-SH as an alternate gene silencing product.

For independent verification of FOXK1 (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-60657A, sc-60657B and sc-60657C.

PROTOCOLS

See our web site at 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 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

FOXK1 siRNA (h) is recommended for the inhibition of FOXK1 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 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

FOXK1 (G-4): sc-373810 is recommended as a control antibody for monitoring of FOXK1 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 FOXK1 gene expression knockdown using RT-PCR Primer: FOXK1 (h)-PR: sc-60657-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.