SANTA CRUZ BIOTECHNOLOGY, INC.

GRHL3 siRNA (m): sc-145762

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The Power to Question

BACKGROUND

The grainyhead subfamily, whose members include GRHL1, GRHL2 and GRHL3, consist of orthologs of the *Drosophila* grainyhead (grh) gene. In *Drosophila*, grh is involved in early dorsal/ventral patterning and tissue development. The grainyhead subfamily members are, therefore, believed to act as transcription factors during development. GRHL1, GRHL2 and GRHL3 are localized to the nucleus and exist as homodimers or as heterodimers with each other. GRHL3, also known as sister of mammalian grainyhead (SOM) or transcription factor CP2-like 4 (TFCP2L4), is a 626 amino acid protein. Transgenic GRHL3-null mouse embryos have displayed many neural tube defects, indicating a significant role of GRHL3 in neural tube formation during development. GRHL3 is widely expressed and exists as four isoforms produced by alternative splicing. Isoform 2 has been shown to be prostate specific.

REFERENCES

1. Estibeiro, J.P., et al. 1993. Interaction between splotch (Sp) and curly tail (ct) mouse mutants in the embryonic development of neural tube defects. Development 119: 113-121.
2. Neumann, P.E., et al. 1994. Multifactorial inheritance of neural tube defects: localization of the major gene and recognition of modifiers in ct mutant mice. Nat. Genet. 6: 357-362.
3. Wilanowski, T., et al. 2002. A highly conserved novel family of mammalian developmental transcription factors related to *Drosophila* grainyhead. Mech. Dev. 114: 37-50.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608317. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Ting, S.B., et al. 2003. The identification and characterization of human sister-of-mammalian grainyhead (SOM) expands the grainyhead-like family of developmental transcription factors. Biochem. J. 370: 953-962.
6. Ting, S.B., et al. 2003. Inositol- and folate-resistant neural tube defects in mice lacking the epithelial-specific factor Grhl-3. Nat. Med. 9: 1513-1519.
7. Ting, S.B., et al. 2005. A homolog of *Drosophila* grainy head is essential for epidermal integrity in mice. Science 308: 411-413.

CHROMOSOMAL LOCATION

Genetic locus: Grhl3 (mouse) mapping to 4 D3.

PRODUCT

GRHL3 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 GRHL3 shRNA Plasmid (m): sc-145762-SH and GRHL3 shRNA (m) Lentiviral Particles: sc-145762-V as alternate gene silencing products.

For independent verification of GRHL3 (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-145762A, sc-145762B and sc-145762C.

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

GRHL3 siRNA (m) is recommended for the inhibition of GRHL3 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

GRHL3 (C-12): sc-398838 is recommended as a control antibody for monitoring of GRHL3 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 GRHL3 gene expression knockdown using RT-PCR Primer: GRHL3 (m)-PR: sc-145762-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.