

RUNX3 siRNA (m): sc-37680

BACKGROUND

The mammalian Runt-related transcription factor (RUNX) family comprises three members, RUNX1 (also designated AML-1, PEBP2 α B, CBFA2), RUNX2 (also designated AML-3, PEBP2 α A, CBFA1, Osf2) and RUNX3 (also designated AML-2, PEBP α C, CBFA3), and belongs to the acute myeloid leukemia (AML) family. RUNX family members are DNA-binding proteins that regulate the expression of genes involved in cellular differentiation and cell cycle progression. RUNX3 is expressed in cells of hematopoietic origin, including myeloid and B-cell lines and spleen. By playing a role in controlling the growth and differentiation of gastric epithelial cells, RUNX3 is a strong candidate as a gastric cancer tumor suppressor. Specifically, hypermethylation inactivates the gene encoding RUNX3. The detection of hypermethylation at multiple regions within the RUNX3 CpG island may aid in the diagnosis and risk assessment of gastric cancer.

REFERENCES

1. Bae, S.C., et al. 1995. Cloning, mapping and expression of PEBP2 α C, a third gene encoding the mammalian Runt domain. *Gene* 159: 245-248.
2. Speck, N.A. and Terry, S. 1995. A new transcription factor family associated with human leukemias. *Crit. Rev. Eukaryot. Gene Expr.* 5: 337-364.
3. Meyers, S., et al. 1996. AML-2 is a potential target for transcriptional regulation by the t(8;21) and t(12;21) fusion proteins in acute leukemia. *Oncogene* 13: 303-312.
4. Zent, C., et al. 1997. Rearrangements of the AML1/ CBFA2 gene in myeloid leukemia with the 3;21 translocation: *in vitro* and *in vivo* studies. *Leukemia* 3: 273-278.

CHROMOSOMAL LOCATION

Genetic locus: Runx3 (mouse) mapping to 4 D3.

PRODUCT

RUNX3 siRNA (m) is a pool of 2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RUNX3 shRNA Plasmid (m): sc-37680-SH and RUNX3 shRNA (m) Lentiviral Particles: sc-37680-V as alternate gene silencing products.

For independent verification of RUNX3 (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-37680A and sc-37680B.

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

APPLICATIONS

RUNX3 siRNA (m) is recommended for the inhibition of RUNX3 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 μ M in 66 μ 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

RUNX3 (A-3): sc-376591 is recommended as a control antibody for monitoring of RUNX3 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 κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 RUNX3 gene expression knockdown using RT-PCR Primer: RUNX3 (m)-PR: sc-37680-PR (20 μ l, 446 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Saito, T., et al. 2015. RUNX1 and RUNX3 are downstream effectors of Nanog in promoting osteogenic differentiation of the mouse mesenchymal cell line C3H10T1/2. *Cell. Reprogram.* 17: 227-234.

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.