

RUNX1 siRNA (m): sc-37678

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). RUNX family members are DNA-binding proteins that regulate the expression of genes involved in cellular differentiation and cell cycle progression. RUNX1 is involved in hematopoiesis and is frequently targeted in human leukemia by chromosomal translocations that fuse the DNA-binding domain of RUNX1 to other transcription factors and corepressor molecules. In addition to its role in leukemogenesis, RUNX1 is also involved in sensory neuron diversification. Specifically, RUNX1 promotes axonal growth, is selectively expressed in neural crest-derived TrkA⁺ sensory neurons and mediates TrkA transactivation in migratory neural crest cells. Alternative splicing gives rise to several isoforms of RUNX1.

REFERENCES

1. Daga, A., et al. 1992. Leukemia/*Drosophila* homology. *Nature* 356: 448.
2. Golub, T.R., et al. 1995. Fusion of the TEL gene on 12p13 to the AML1 gene on 21q22 in acute lymphoblastic leukemia. *Proc. Natl. Acad. Sci. USA* 92: 4917-4921.
3. Miyoshi, H., et al. 1995. Alternative splicing and genomic structure of the AML1 gene involved in acute myeloid leukemia. *Nucleic Acids Res.* 23: 2762-2769.
4. Levanon, D., et al. 1996. A large variety of alternatively spliced and differentially expressed mRNAs are encoded by the human acute myeloid leukemia gene AML1. *DNA Cell Biol.* 15: 175-185.

CHROMOSOMAL LOCATION

Genetic locus: Runx1 (mouse) mapping to 16 C4.

PRODUCT

RUNX1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RUNX1 shRNA Plasmid (m): sc-37678-SH and RUNX1 shRNA (m) Lentiviral Particles: sc-37678-V as alternate gene silencing products.

For independent verification of RUNX1 (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-37678A, sc-37678B and sc-37678C.

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

RUNX1 siRNA (m) is recommended for the inhibition of RUNX1 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

RUNX1 (A-2): sc-365644 is recommended as a control antibody for monitoring of RUNX1 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 RUNX1 gene expression knockdown using RT-PCR Primer: RUNX1 (m)-PR: sc-37678-PR (20 μ l, 566 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.
2. Zhou, C., et al. 2021. Runx1 protects against the pathological progression of osteoarthritis. *Bone Res.* 9: 50.

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.