SANTA CRUZ BIOTECHNOLOGY, INC.

PEBP2β siRNA (m): sc-37682

BACKGROUND

The transcription factor polyomavirus enhancer binding protein 2 (PEBP2), also designated Osf2 (osteoblast-specific transcription factor), CBFA1 (core binding factor) and AML3 (acute myeloid leukemia), is composed of two subunits, α and β, which are essential for the regulation of hematopoiesis and osteogenesis. The PEBP2α subunits, PEBP2αA, PEBP2αB and PEBP2αC, are encoded by three RUNX genes, all of which contain a 128-amino acid region homologous to the highly conserved *Drosophila* segmentation gene, Runt. This region is involved in DNA binding and heterodimerization with the regulatory β subunit, which facilitates DNA binding of the α subunit. Both subunits are required for *in vivo* function; the disruption of either gene results in a lack of definitive hematopoiesis followed by embryo death *in utero* due to hemorrhage in the central nervous system. The gene encoding PEBP2β is the target of chromosomal inversion 16 (p13;q22) with the smooth muscle myosin heavy chain, producing a chimeric gene, PEBP2β/CBFB-SMMHC, that is associated with human acute myeloid leukemia.

REFERENCES

1. Kamachi, Y., et al. 1990. Purification of a mouse nuclear factor that binds to both the A and B cores of the polyomavirus enhancer. J. Virol. 64: 4808-4819.
2. Ogawa, E., et al. 1993. PEBP2/PEA2 represents a family of transcription factors homologous to the products of the *Drosophila* Runt gene and the human AML1 gene. Proc. Natl. Acad. Sci. USA 90: 6859-6863.
3. Ogawa, E., et al. 1993. Molecular cloning and characterization of PEBP2β, the heterodimeric partner of a novel *Drosophila* Runt-related DNA binding protein PEBP2α. Virology 194: 314-331.
4. Tanaka, Y., et al. 1998. The chimeric protein, PEBP2β/CBFβ-SMMHC, disorganizes cytoplasmic stress fibers and inhibits transcriptional activation. Oncogene 17: 699-708.
5. Hanai, J., et al. 1999. Interaction and functional cooperation of PEBP2/CBF with Smads. Synergistic induction of the immunoglobulin germline Cα promoter. J. Biol. Chem. 274: 31577-31582.
6. Bae, S.C., et al. 1999. Regulation mechanisms for the heterodimeric transcription factor, PEBP2/CBF. Histol. Histopathol. 14: 1213-1221.

CHROMOSOMAL LOCATION

Genetic locus: Cbfb (mouse) mapping to 8 D3.

PRODUCT

PEBP2β 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 PEBP2β shRNA Plasmid (m): sc-37682-SH and PEBP2β shRNA (m) Lentiviral Particles: sc-37682-V as alternate gene silencing products.

For independent verification of PEBP2β (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-37682A, sc-37682B and sc-37682C.

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

PEBP2β siRNA (m) is recommended for the inhibition of PEBP2β 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

PEBP2β (141,4,1): sc-56751 is recommended as a control antibody for monitoring of PEBP2β 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 PEBP2β gene expression knockdown using RT-PCR Primer: PEBP2β (m)-PR: sc-37682-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.