SANTA CRUZ BIOTECHNOLOGY, INC.

PML siRNA (m): sc-36283

BACKGROUND

The PML protein is a zinc finger transcription factor expressed as three major transcription products due to alternative splicing. The gene encoding human PML maps to chromosome 15q24.1. The t(15;17) (q22;q11.2-q12) chromosomal translocation of the retinoic acid receptor α (RARα) gene occurs in virtually all cases of acute promyelocytic leukemia and results in the expression of a PML/RARα chimeric protein. Myeloid precursor cells expressing the PML/RARα chimera fail to differentiate and exhibit an increased growth rate consequent to diminished apoptosis. PML/RARα transforms myeloid precursors by recruiting the nuclear co-repressor (N-CoR)-histone deacetylase complex that is essential to retinoic acid-dependent myeloid differentiation. PML/RARα also recruits DNA methyltransferases in order to induce gene hypermethylation and silencing, which ultimately facilitates leukemogenesis.

REFERENCES

1. de The, H., et al. 1990. The t(15;17) translocation of acute promyelocytic leukaemia fuses the retinoic acid receptor alpha gene to a novel transcribed locus. Nature 347: 558-561.
2. Borrow, J., et al. 1990. Molecular analysis of acute promyelocytic leukemia breakpoint cluster region on chromosome 17. Science 249: 1577-1580.
3. Goddard, A.D., et al. 1991. Characterization of a zinc finger gene disrupted by the t(15;17) in acute promyelocytic leukemia. Science 254: 1371-1374.
4. Pandolfi, P.P., et al. 1991. Structure and origin of the acute promyelocytic leukemia myl/RARα cDNA and characterization of its retinoid-binding and transactivation properties. Oncogene 6: 1285-1292.

CHROMOSOMAL LOCATION

Genetic locus: Pml (mouse) mapping to 9 B.

PRODUCT

PML 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 PML shRNA Plasmid (m): sc-36283-SH and PML shRNA (m) Lentiviral Particles: sc-36283-V as alternate gene silencing products.

For independent verification of PML (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-36283A, sc-36283B and sc-36283C.

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

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

PML (E-11): sc-377390 is recommended as a control antibody for monitoring of PML 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 PML gene expression knockdown using RT-PCR Primer: PML (m)-PR: sc-36283-PR (20 µl, 440 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Giovannoni, F., et al. 2015. Cellular promyelocytic leukemia protein is an important dengue virus restriction factor. PLoS ONE 10: e0125690.
2. Giovannoni, F., et al. 2019. Dengue non-structural protein 5 polymerase complexes with promyelocytic leukemia protein (PML) isoforms III and IV to disrupt PML-nuclear bodies in infected cells. Front. Cell. Infect. Microbiol. 9: 284.

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.