

PML siRNA (h): sc-36284

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 (RAR α) gene occurs in virtually all cases of acute promyelocytic leukemia and results in the expression of a PML/RAR α chimeric protein. Myeloid precursor cells expressing the PML/RAR α chimera fail to differentiate and exhibit an increased growth rate consequent to diminished apoptosis. PML/RAR α transforms myeloid precursors by recruiting the nuclear co-repressor (N-CoR)-histone deacetylase complex that is essential to retinoic acid-dependent myeloid differentiation. PML/RAR α also recruits DNA methyltransferases in order to induce gene hypermethylation and silencing, which ultimately facilitates leukemogenesis.

CHROMOSOMAL LOCATION

Genetic locus: PML (human) mapping to 15q24.1.

PRODUCT

PML siRNA (h) is a target-specific 19-25 nt siRNA 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 PML shRNA Plasmid (h): sc-36284-SH and PML shRNA (h) Lentiviral Particles: sc-36284-V as alternate gene silencing products.

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

PML siRNA (h) is recommended for the inhibition of PML expression in human 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.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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-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 PML gene expression knockdown using RT-PCR Primer: PML (h)-PR: sc-36284-PR (20 μ l, 569 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Pan, W.W., et al. 2013. Death domain-associated protein DAXX promotes ovarian cancer development and chemoresistance. *J. Biol. Chem.* 288: 13620-13630.
- Tang, H., et al. 2016. Arsenite inhibits the function of CD133⁺ CD13⁺ liver cancer stem cells by reducing PML and Oct4 protein expression. *Tumour Biol.* 37: 14103-14115.
- Chen, D., et al. 2018. Promyelocytic leukemia restricts enterovirus 71 replication by inhibiting autophagy. *Front. Immunol.* 9: 1268.
- Datta, N., et al. 2019. Promyelocytic leukemia (PML) gene regulation: implication towards curbing oncogenesis. *Cell Death Dis.* 10: 656.
- Zhu, G., et al. 2020. TRIM11 prevents and reverses protein aggregation and rescues a mouse model of Parkinson's disease. *Cell Rep.* 33: 108418.
- Rauth, S., et al. 2021. SUMO modification of PAF1/PD2 enables PML interaction and promotes radiation resistance in pancreatic ductal adenocarcinoma. *Mol. Cell. Biol.* 41: e0013521.
- Yan, H.Y., et al. 2021. PML suppresses influenza virus replication by promoting FBXW7 expression. *Virol. Sin.* 36: 1154-1164.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.