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Lyl-1 shRNA (m) Lentiviral Particles: sc-45689-V

BACKGROUND

Lyl-1, TAL1 and TAL2 are part of a family of basic helix-loop-helix (bHLH) proteins implicated in T cell acute leukemia. TAL1, also designated SCL, is a serine phosphoprotein and basic helix-loop-helix transcription factor known to regulate embryonic hematopoiesis. TAL2 is a protein involved in T cell acute lymphoblastic leukemia through a chromosomal translocation involving TAL2 and T cell receptor β chain genes. TAL2 includes a helix-loop-helix protein dimerization and DNA-binding domain that is homologous to TAL1 and Lyl-1 proto-oncogenes. Lyl-1 (lymphoblastic leukemia-derived sequence 1) is a nuclear protein. Endogenous Lyl-1 exists in complex with E2 α proteins. Lyl-1 and E2 α protein can form heterodimeric complexes with distinctive DNA-binding properties in hematology cells. Lyl-1 is involved in a chromosomal aberration which causes a form of T cell acute lymphoblastic leukemia (T-ALL).

REFERENCES

1. Cleary, M.L., et al. 1988. Chromosomal translocation involving the β T cell receptor gene in acute leukemia. *J. Exp. Med.* 167: 682-687.
2. Mellentin, J.D., et al. 1989. Lyl-1, a novel gene altered by chromosomal translocation in T cell leukemia, codes for a protein with a helix-loop-helix DNA-binding motif. *Cell* 58: 77-83.
3. Kuo, S.S., et al. 1991. Structure, chromosome mapping, and expression of the mouse Lyl-1 gene. *Oncogene* 6: 961-968.
4. Goldfarb, A.N., et al. 1992. T cell acute lymphoblastic leukemia—the associated gene SCL/TAL codes for a 42 kDa nuclear phosphoprotein. *Blood* 80: 2858-2866.
5. Trask, B., et al. 1993. Fluorescence *in situ* hybridization mapping of human chromosome 19: cytogenetic band location of 540 cosmids and 70 genes or DNA markers. *Genomics* 15: 133-145.
6. Wadman, I., et al. 1994. Specific *in vivo* association between the bHLH and LIM proteins implicated in human T cell leukemia. *EMBO J.* 13: 4831-4839.
7. SWISS-PROT/TrEMBL (P12980). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

CHROMOSOMAL LOCATION

Genetic locus: Lyl1 (mouse) mapping to 8 C3.

PRODUCT

Lyl-1 shRNA (m) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 μ l frozen stock containing 1.0×10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see Lyl-1 siRNA (m): sc-45689 and Lyl-1 shRNA Plasmid (m): sc-45689-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80°C . Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4°C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

Lyl-1 shRNA (m) Lentiviral Particles is recommended for the inhibition of Lyl-1 expression in mouse cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 μ l frozen viral stock containing 1.0×10^6 infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

GENE EXPRESSION MONITORING

Lyl-1 (F-9): sc-390277 is recommended as a control antibody for monitoring of Lyl-1 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 (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Lyl-1 gene expression knockdown using RT-PCR Primer: Lyl-1 (m)-PR: sc-45689-PR (20 μ l). Annealing temperature for the primers should be $55-60^\circ\text{C}$ and the extension temperature should be $68-72^\circ\text{C}$.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

PROTOCOLS

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