

TAL1 siRNA (h): sc-36608

BACKGROUND

Activation of TAL1 characterizes up to 60% of cases of human T cell acute lymphoblastic leukemia, making it the most frequent gain-of-function mutation observed in this disorder. TAL1 (also designated SCL) is a serine phosphoprotein and basic helix-loop-helix transcription factor known to regulate embryonic hematopoiesis. This transcription factor binds as a heterodimer with E2A and HEB/HTF4 to a nucleotide sequence motif termed the E-box. In addition, leukemogenesis is accelerated dramatically by transgenic co-expression of TAL1 and the catalytic subunit of casein kinase II α , a serine/threonine protein kinase known to modulate the activity of other bHLH transcription factors.

REFERENCES

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2. Bash, R.O., et al. 1995. Does activation of the TAL1 gene occur in a majority of patients with T-cell acute lymphoblastic leukemia? A pediatric oncology group study. *Blood* 86: 666-676.
3. Chetty, R., et al. 1996. An immunohistochemical study of TAL1 protein expression in leukaemias and lymphomas with a novel monoclonal antibody, 2TL 242. *J. Pathol.* 178: 311-315.
4. Kelliher, M.A., et al. 1996. TAL1 induces T cell acute lymphoblastic leukemia accelerated by casein kinase II α . *EMBO J.* 15: 5160-5166.
5. Huang, S., et al. 2000. mSin3A regulates murine erythroleukemia cell differentiation through association with the TAL1 (or SCL) transcription factor. *Mol. Cell. Biol.* 20: 2248-2259.
6. O'Neil, J., et al. 2001. The DNA binding activity of TAL1 is not required to induce leukemia/lymphoma in mice. *Oncogene* 20:3897-3905.
7. Lazrak, M., et al. 2004. The bHLH TAL1/SCL regulates endothelial cell migration and morphogenesis. *J. Cell Sci.* 117: 1161-1171.
8. Giroux, S., et al. 2007. Lyl-1 and TAL1/SCL, two genes encoding closely related bHLH transcription factors, display highly overlapping expression patterns during cardiovascular and hematopoietic ontogeny. *Gene Expr. Patterns* 7: 215-226.

CHROMOSOMAL LOCATION

Genetic locus: TAL1 (human) mapping to 1p33.

PRODUCT

TAL1 siRNA (h) 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 TAL1 shRNA Plasmid (h): sc-36608-SH and TAL1 shRNA (h) Lentiviral Particles: sc-36608-V as alternate gene silencing products.

For independent verification of TAL1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-36608A, sc-36608B and sc-36608C.

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

TAL1 siRNA (h) is recommended for the inhibition of TAL1 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.

GENE EXPRESSION MONITORING

TAL1 (C-4): sc-393287 is recommended as a control antibody for monitoring of TAL1 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 TAL1 gene expression knockdown using RT-PCR Primer: TAL1 (h)-PR: sc-36608-PR (20 μ l, 518 bp). 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.