SANTA CRUZ BIOTECHNOLOGY, INC.

RFLAT-1 siRNA (h): sc-38234

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The Power to Question

BACKGROUND

RANTES factor of late activated T lymphocytes-1 (RFLAT-1), also designated BTEB3 and Krüppel-like factor 13 (KLF13), is a novel transcription factor that is expressed in T cells in the late stages of activation. This delayed induction coincides with the expression of RANTES, a chemoattractant cytokine for monocytes, T lymphocytes, eosinophils, basophils and natural killer cells. RFLAT-1 is localized to the nucleus, where it associates with the A site of the RANTES promoter and, in turn, faciliates transcriptional activation. RFLAT-1 is related to the transcription factor TFIIA-like zinc finger protein superfamily, as it contains three distinct and contigous zinc finger motifs at the carboxy-terminus and a proline-rich transcriptional activation domain, which are also present in TFIIA family of proteins, including Sp1 and Sp3. Although RFLAT-1 activates gene-specific transcription in activated T cells, it is also ubiquitously expressed in various cell types where it is likely regulated by phosphorylation. Late stage transcriptional activation of RANTES in activated T cells is also strongly influenced by Rel proteins of the NFκB family, suggesting that RFLAT-1 and Rel may synergistically activate the RANTES promoter.

REFERENCES

1. Nelson, P.J., et al. 1996. Identification of a novel regulatory region critical for expression of the RANTES chemokine in activated T lymphocytes. J. Immunol. 157: 1139-1148.
2. Ortiz, B.D., et al. 1996. Kinetics of transcription factors regulating the RANTES chemokine gene reveal a developmental switch in nuclear events during T lymphocyte maturation. Mol. Cell. Biol. 16: 202-210.
3. Ortiz, B.D., et al. 1997. Switching gears during T cell maturation: RANTES and late transcription. Immunol. Today 18: 468-471.
4. Wong, M. and Fish, E.N. 1998. RANTES and MIP-1 α activate Stats in T cells. J. Biol. Chem. 273: 309-314.
5. Song, A., et al. 1999. RFLAT-1: a new zinc finger transcription factor that activates RANTES gene expression in T lymphocytes. Immunity 10: 93-103.
6. Lin, R., et al. 1999. Essential role of interferon regulatory factor 3 in direct activation of RANTES chemokine transcription. Mol. Cell. Biol. 19: 959-966.
7. Kuo, C.T. and Leiden, J.M. 1999. Transcriptional regulation of T lymphocyte development and function. Annu. Rev. Immunol. 17:149-187.

CHROMOSOMAL LOCATION

Genetic locus: KLF13 (human) mapping to 15q13.3.

PRODUCT

RFLAT-1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RFLAT-1 shRNA Plasmid (h): sc-38234-SH and RFLAT-1 shRNA (h) Lentiviral Particles: sc-38234-V as alternate gene silencing products.

For independent verification of RFLAT-1 (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-38234A, sc-38234B and sc-38234C.

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

RFLAT-1 siRNA (h) is recommended for the inhibition of RFLAT-1 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 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

RFLAT-1 (IP-2): sc-130454 is recommended as a control antibody for monitoring of RFLAT-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 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 RFLAT-1 gene expression knockdown using RT-PCR Primer: RFLAT-1 (h)-PR: sc-38234-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yang, S., et al. 2023. Sp1-like protein KLF13 acts as a negative feedback regulator of TGF-β signaling and fibrosis. Cell Rep. 42: 112367.

RESEARCH USE

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