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# TSLP shRNA (h) Lentiviral Particles: sc-45234-V

## BACKGROUND

Thymic stromal lymphopoietin (TSLP) is a novel member of the hemopoietic cytokine family that promotes the development of B cells and shares overlapping activity with IL-7. The gene encoding murine TSLP maps to chromosome 18 and its human homologue is expressed in several tissues, including heart, liver and prostate. TSLP mediates its function by binding to a receptor complex. TSLP first binds with low affinity to a TSLP-specific chain designated TSLPR, and then forms a high affinity complex with the IL-7R $\alpha$  subunit, which explains the overlapping biological properties between TSLP and IL-7. Both TSLP and IL-7 induce phosphorylation of the transcription factor Stat5, but unlike IL-7, TSLP-mediated signaling does not activate the JAKs. TSLP prevents apoptosis and stimulates the proliferation of myeloid cells, which is supported by the coexpression of TSLPR and IL-7R $\alpha$  on monocytes and dendritic cells.

## REFERENCES

1. Levin, S.D., et al. 1999. Thymic stromal lymphopoietin: a cytokine that promotes the development of IgM<sup>+</sup> B cells *in vitro* and signals via a novel mechanism. *J. Immunol.* 162: 677-683.
2. Isaksen, D.E., et al. 1999. Requirement for Stat5 in thymic stromal lymphopoietin-mediated signal transduction. *J. Immunol.* 163: 5971-5977.
3. Park, L.S., et al. 2000. Cloning of the murine thymic stromal lymphopoietin (TSLP) receptor: Formation of a functional heteromeric complex requires interleukin 7 receptor. *J. Exp. Med.* 192: 659-670.
4. Sims, J.E., et al. 2000. Molecular cloning and biological characterization of a novel murine lymphoid growth factor. *J. Exp. Med.* 192: 671-680.
5. Pandey, A., et al. 2000. Cloning of a receptor subunit required for signaling by thymic stromal lymphopoietin. *Nat. Immunol.* 1: 59-64.
6. Reche, P.A., et al. 2001. Human thymic stromal lymphopoietin preferentially stimulates myeloid cells. *J. Immunol.* 167: 336-343.
7. Quentmeier, H., et al. 2001. Cloning of human thymic stromal lymphopoietin (TSLP) and signaling mechanisms leading to proliferation. *Leukemia* 15: 1286-1292.

## CHROMOSOMAL LOCATION

Genetic locus: TSLP (human) mapping to 5q22.1.

## PRODUCT

TSLP shRNA (h) 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  $\mu$ l frozen stock containing  $1.0 \times 10^6$  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 TSLP siRNA (h): sc-45234 and TSLP shRNA Plasmid (h): sc-45234-SH as alternate gene silencing products.

## STORAGE

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

## APPLICATIONS

TSLP shRNA (h) Lentiviral Particles is recommended for the inhibition of TSLP expression in human cells.

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200  $\mu$ l frozen viral stock containing  $1.0 \times 10^6$  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

TSLP (FL-159): sc-33791 is recommended as a control antibody for monitoring of TSLP 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-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>TM</sup> compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker<sup>TM</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz<sup>TM</sup> Mounting Medium: sc-24941.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TSLP gene expression knockdown using RT-PCR Primer: TSLP (h)-PR: sc-45234-PR (20  $\mu$ l, 436 bp). Annealing temperature for the primers should be  $55-60^{\circ}$  C and the extension temperature should be  $68-72^{\circ}$  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.

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