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HePTP shRNA (m) Lentiviral Particles: sc-45923-V

BACKGROUND

Hematopoietic protein tyrosine phosphatase (HePTP) belongs to a subgroup of PTPases with two other members, STEP and PCPTP1, all of which consist of a single C-terminal PTPase domain that is preceded by a noncatalytic N-terminal domain. Unlike STEP and PCPTP1, which are expressed primarily in the central nervous system, HePTP is expressed in thymus, spleen and in leukemic cell lines, including Jurkat T leukemia cells. The gene encoding HePTP was originally cloned from human T lymphocytes, and it maps to chromosome 1q32.1, a site frequently mutated in preleukemic myeloproliferative disease. The locus of the gene suggests a role for HePTP in cell proliferation and differentiation. The HePTP gene is transcriptionally activated in T cells treated with Interleukin 6. HePTP mRNA levels increase several-fold in normal mouse lymphocytes upon stimulation with phytohemagglutinin, lipopolysaccharide, concanavalin A and anti-CD3. Overexpression of HePTP reduces T cell receptor (TCR)-induced activation of ERK 2, and interferes with PMA and growth factor-induced MAPK activation in myeloid cells.

REFERENCES

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- Adachi, M., et al. 1994. Induction of protein tyrosine phosphatase LC-PTP by IL-2 in human T cells. LC-PTP is an early response gene. *FEBS Lett.* 338: 47-52.
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CHROMOSOMAL LOCATION

Genetic locus: Ptpn7 (mouse) mapping to 1 E4.

PRODUCT

HePTP 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 HePTP siRNA (m): sc-45923 and HePTP shRNA Plasmid (m): sc-45923-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

HePTP shRNA (m) Lentiviral Particles is recommended for the inhibition of HePTP 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

HePTP (H-80): sc-21008 is recommended as a control antibody for monitoring of HePTP 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™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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-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™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HePTP gene expression knockdown using RT-PCR Primer: HePTP (m)-PR: sc-45923-PR (20 μ l, 511 bp). 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.

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