SANTA CRUZ BIOTECHNOLOGY, INC.

HePTP siRNA (m): sc-45923

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

1. Zanke, B., et al. 1992. Cloning and expression of an inducible lymphoid-specific, protein tyrosine phosphatase (HePTPase). Eur. J. Immunol. 22: 235-239.
2. Zanke, B., et al. 1994. A hematopoietic protein tyrosine phosphatase (HePTP) gene that is amplified and overexpressed in myeloid malignancies maps to chromosome 1q32.1. Leukemia 8: 236-244.
3. 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.
4. Saxena, M., et al. 1998. Negative regulation of T cell antigen receptor signal transduction by hematopoietic tyrosine phosphatase (HePTP). J. Biol. Chem. 273: 15340-15344.
5. Saxena, M., et al. 1999. Inhibition of T cell signaling by mitogen-activated protein kinase-targeted hematopoietic tyrosine phosphatase (HePTP). J. Biol. Chem. 274: 11693-11700.
6. Gronda, M., et al. 2001. Hematopoietic protein tyrosine phosphatase suppresses extracellular stimulus-regulated kinase activation. Mol. Cell. Biol. 21: 6851-6858.

CHROMOSOMAL LOCATION

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

PRODUCT

HePTP siRNA (m) 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 HePTP shRNA Plasmid (m): sc-45923-SH and HePTP shRNA (m) Lentiviral Particles: sc-45923-V as alternate gene silencing products.

For independent verification of HePTP (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-45923A, sc-45923B and sc-45923C.

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

HePTP siRNA (m) is recommended for the inhibition of HePTP expression in mouse 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.

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 µl, 511 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.