SANTA CRUZ BIOTECHNOLOGY, INC.

SH-PTP2 siRNA (h): sc-36488

BACKGROUND

The steady state of protein tyrosyl phosphorylation in cells is regulated by the opposing action of tyrosine kinases and protein tyrosine phosphatases (PTPs). Several groups have independently identified a non-transmembrane PTP, designated SH-PTP1 (also known as PTP1C, HCP and SHP), which is primarily expressed in hematopoietic cells and characterized by the presence of two SH2 domains N-terminal to the PTP domain. SH2 domains generally mediate the association of regulatory molecules with specific phosphotyrosine-containing sites on autophosphorylated receptors, thereby controlling the initial interaction of receptors with these substrates. A second and much more widely expressed PTP with SH2 domains, SH-PTP2 (also designated PTP1D and Syp), has been identified. Strong sequence similarity between SH-PTP2 and the *Drosophila* gene corkscrew (CSW) and their similar patterns of expression suggest that SH-PTP2 is the human corkscrew homolog.

REFERENCES

1. Chernoff, J., et al. 1990. Cloning of a cDNA for a major human protein-tyrosine-phosphatase. Proc. Natl. Acad. Sci. USA 87: 2735-2739.
2. Shen, S., et al. 1991. A protein-tyrosine phosphatase with sequence similarity to the SH2 domain of the protein-tyrosine kinases. Nature 352: 736-739.

CHROMOSOMAL LOCATION

Genetic locus: PTPN11 (human) mapping to 12q24.13.

PRODUCT

SH-PTP2 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 SH-PTP2 shRNA Plasmid (h): sc-36488-SH and SH-PTP2 shRNA (h) Lentiviral Particles: sc-36488-V as alternate gene silencing products.

For independent verification of SH-PTP2 (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-36488A, sc-36488B and sc-36488C.

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

SH-PTP2 siRNA (h) is recommended for the inhibition of SH-PTP2 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

SH-PTP2 (B-1): sc-7384 is recommended as a control antibody for monitoring of SH-PTP2 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SH-PTP2 gene expression knockdown using RT-PCR Primer: SH-PTP2 (h)-PR: sc-36488-PR (20 µl, 473 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Petti, L.M. 2007. Identification of a potent apoptotic peptide produced by fibroblasts; studies towards the design of a novel agent for breast cancer therapy. ResearchGate. E-published.
2. Petti, L.M., et al. 2008. Transforming signals resulting from sustained activation of the PDGFβ receptor in mortal human fibroblasts. J. Cell Sci. 121: 1172-1182.
3. Tossidou, I., et al. 2008. Tyrosine phosphatase SHP-2 is a regulator of $p27^{Kip1}$ tyrosine phosphorylation. Cell Cycle 7: 3858-3868.
4. Nystrom, A., et al. 2009. Role of tyrosine phosphatase SHP-1 in the mechanism of endorepellin angiostatic activity. Blood 114: 4897-4906.
5. Sinha, S., et al. 2009. Dopamine regulates phosphorylation of VEGF receptor 2 by engaging Src-homology-2-domain-containing protein tyrosine phosphatase 2. J. Cell Sci. 122: 3385-3392.
6. Kim, S.H., et al. 2012. Antagonism of VEGF-A-induced increase in vascular permeability by an integrin α3β1-SHP-1-cAMP/PKA pathway. Blood 120: 4892-4902.
7. Yu, J., et al. 2013. Modulation of fatty acid synthase degradation by concerted action of p38 MAP kinase, E3 ligase COP1, and SH2-tyrosine phosphatase Shp2. J. Biol. Chem. 288: 3823-3830.
8. Lee, J.H., et al. 2014. Capillarisin inhibits constitutive and inducible Stat3 activation through induction of SHP-1 and SHP-2 tyrosine phosphatases. Cancer Lett. 345: 140-148.

RESEARCH USE

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