SANTA CRUZ BIOTECHNOLOGY, INC.

PTP1B siRNA (m): sc-36329

BACKGROUND

The phosphorylation of proteins at tyrosine residues has long been recognized as an important regulatory component of signal transduction. This is a reversible process, involving both enzymes that phosphorylate proteins on tyrosine residues as well as a rapidly expanding family of protein tyrosine phosphatases. These latter enzymes bear little resemblance to either the protein serine and protein threonine phosphatases or to the acid and alkaline phosphatases. In most tissues, the major PTPase is a vanadate- and molybdate-sensitive protein. On the basis of sequence analysis, PTP1B (PTPase 1B) expressed in human placenta exhibits similarities both with the common leukocyte antigen (CD45) and with LAR, a homolog of the neural adhesion molecule (NCAM). PTP1B is synthesized as a 435 amino acid precursor protein which is cleaved to generate the active 321 amino acid enzyme.

REFERENCES

1. Hunter, T., et al. 1985. Protein-tyrosine kinases. Annu. Rev. Biochem. 54: 897-930.
2. Tonks, N.K., et al. 1988. Purification of the major protein-tyrosine-phosphatases of human placenta. J. Biol. Chem. 263: 6722-6730.
3. Strueli, M., et al. 1988. A new member of the immunoglobulin superfamily that has a cytoplasmic region homologous to the leukocyte common antigen. J. Exp. Med. 168: 1523-1530.
4. Moria, A.O., et al. 1989. Reversible tyrosine phosphorylation of Cdc2: dephosphorylation accompanies activation during entry into mitosis. Cell 58: 193-203.
5. Gould, K.L., et al. 1989. Tyrosine phosphorylation of the fission yeast Cdc2 protein kinase regulates entry into mitosis. Nature 342: 39-45.
6. Lau, K.H., et al. 1989. Phosphotyrosyl protein phosphatases. Biochem. J. 257: 23-36.
7. Charbonneau, H., et al. 1989. Human placenta protein-tyrosine-phosphatase: amino acid sequence and relationship to a family of receptor-like proteins. Proc. Natl. Acad. Sci. USA 86: 5252-5256.
8. Chernoff, J., et al. 1990. Cloning of a cDNA for a major human protein-tyrosine-phosphatase. Proc. Natl. Acad. Sci. USA 87: 2735-2739.

CHROMOSOMAL LOCATION

Genetic locus: Ptpn1 (mouse) mapping to 2 H3.

PRODUCT

PTP1B 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 PTP1B shRNA Plasmid (m): sc-36329-SH and PTP1B shRNA (m) Lentiviral Particles: sc-36329-V as alternate gene silencing products.

For independent verification of PTP1B (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-36329A, sc-36329B and sc-36329C.

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

PTP1B siRNA (m) is recommended for the inhibition of PTP1B 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 PTP1B gene expression knockdown using RT-PCR Primer: PTP1B (m)-PR: sc-36329-PR (20 µl, 443 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Srivastav, S., et al. 2014. *Leishmania donovani* prevents oxidative burst-mediated apoptosis of host macrophages through selective induction of suppressors of cytokine signaling (SOCS) proteins. J. Biol. Chem. 289: 1092-1105.
2. Inoue, T., et al. 2019. Oxytocin suppresses inflammatory responses induced by lipopolysaccharide through inhibition of the eIF-2-ATF4 pathway in mouse microglia. Cells 8: 527.

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.