SANTA CRUZ BIOTECHNOLOGY, INC.

HD-PTP siRNA (h): sc-62449

BACKGROUND

HD-PTP (tyrosine-protein phosphatase non-receptor type 23, PTP-TD14) is a 1,636 amino acid protein encoded by the human gene PTPN23. HD-PTP belongs to the protein-tyrosine phosphatase family, non-receptor class subfamily. It contains one BRO1 domain, two TPR repeats and one tyrosine-protein phosphatase domain. The C-terminal region contains the PTP-like domain, whereas the N-terminal region contains the two TPR regions. These regions are homologous to the yeast protein, BRO1, which is involved in the mitogen-activated protein kinase signaling pathway. Similarly, HD-PTP is believed to act as a negative regulator of Ras-mediated mitogenic activity and is phosphorylated upon DNA damage, probably by ATM or ATR. HD-PTP protein is differentially modulated by two angiogenic growth factors. While vascular endothelial growth factor (VEGF) has no affect on protein levels, fibroblast growth factor-2 (FGF-2) induces HD-PTP degradation via the proteasome system.

REFERENCES

1. Cheng, J., et al. 1996. A novel protein tyrosine phosphatase expressed in lin(lo)CD34(hi)Sca(hi) hematopoietic progenitor cells. Blood 88: 1156-1167.
2. Cao, L., et al. 1998. A novel putative protein-tyrosine phosphatase contains a BRO1-like domain and suppresses Ha-ras-mediated transformation. J. Biol. Chem. 273: 21077-21083.
3. Toyooka, S., et al. 2000. HD-PTP: A novel protein tyrosine phosphatase gene on human chromosome 3p21.3. Biochem. Biophys. Res. Commun. 278: 671-678.
4. Mariotti, M., et al. 2006. Expression analysis and modulation by HIV-Tat of the tyrosine phosphatase HD-PTP. J. Cell. Biochem. 98: 301-308.
5. Mariotti, M., et al. 2006. The tyrosine phosphatase HD-PTP is regulated by FGF-2 through proteasome degradation. Front. Biosci. 11: 2138-2143.
6. Ichioka, F., et al. 2007. HD-PTP and Alix share some membrane-traffic related proteins that interact with their Bro1 domains or proline-rich regions. Arch. Biochem. Biophys. 457: 142-149.
7. Matsuoka, S., et al. 2007. ATM and ATR substrate analysis reveals extensive protein networks responsive to DNA damage. Science 316: 1160-1166.

CHROMOSOMAL LOCATION

Genetic locus: PTPN23 (human) mapping to 3p21.31.

PRODUCT

HD-PTP 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 HD-PTP shRNA Plasmid (h): sc-62449-SH and HD-PTP shRNA (h) Lentiviral Particles: sc-62449-V as alternate gene silencing products.

For independent verification of HD-PTP (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-62449A, sc-62449B and sc-62449C.

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

HD-PTP siRNA (h) is recommended for the inhibition of HD-PTP 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

HD-PTP (F-4): sc-398711 is recommended as a control antibody for monitoring of HD-PTP 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 reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HD-PTP gene expression knockdown using RT-PCR Primer: HD-PTP (h)-PR: sc-62449-PR (20 µl, 589 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.