SANTA CRUZ BIOTECHNOLOGY, INC.

PTPN21 siRNA (h): sc-76291

BACKGROUND

The protein tyrosine phosphatase (PTP) family of proteins are signaling molecules that regulate processes such as cell growth, cell differentiation, oncogenic transformation and the mitotic cycle. PTPN21 (protein tyrosine phosphatase, non-receptor type 21), also known as PTPD1 or PTPRL10, is a 1,174 amino acid member of the PTP family and localizes to both the cytoplasm and the cytoskeleton. Containing one FERM domain and one tyrosine-protein phosphatase domain, PTPN21 functions to catalyze the water-dependent conversion of a protein tyrosine phosphate into a protein tyrosine and a free phosphate and, via this catalytic activity, may be involved in liver regeneration and spermatogenesis. The gene encoding PTPN21 maps to human chromosome 14, which houses over 700 genes and comprises nearly 3.5% of the human genome.

REFERENCES

1. Moller, N.P., et al. 1994. Src kinase associates with a member of a distinct subfamily of protein-tyrosine phosphatases containing an ezrin-like domain. Proc. Natl. Acad. Sci. USA 91: 7477-7481.
2. Tokuchi, H., et al. 1999. Expression of protein tyrosine phosphatase PTP-RL10 and its isoform in the mouse testis. Int. J. Urol. 6: 572-577.
3. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 603271. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Jui, H.Y., et al. 2000. Protein-tyrosine phosphatase D1, a potential regulator and effector for Tec family kinases. J. Biol. Chem. 275: 41124-41132.
5. Cardone, L., et al. 2004. Mitochondrial AKAP121 binds and targets protein tyrosine phosphatase D1, a novel positive regulator of src signaling. Mol. Cell. Biol. 24: 4613-4626.
6. Zeitlin, A.A., et al. 2006. Use of Tag single nucleotide polymorphisms (SNPs) to screen PTPN21: no association with Graves' disease. Clin. Endocrinol. 65: 380-384.
7. Korff, S., et al. 2008. Frameshift mutations in coding repeats of protein tyrosine phosphatase genes in colorectal tumors with microsatellite instability. BMC Cancer 8: 329.

CHROMOSOMAL LOCATION

Genetic locus: PTPN21 (human) mapping to 14q31.3.

PRODUCT

PTPN21 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 PTPN21 shRNA Plasmid (h): sc-76291-SH and PTPN21 shRNA (h) Lentiviral Particles: sc-76291-V as alternate gene silencing products.

For independent verification of PTPN21 (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-76291A, sc-76291B and sc-76291C.

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

PTPN21 siRNA (h) is recommended for the inhibition of PTPN21 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PTPN21 gene expression knockdown using RT-PCR Primer: PTPN21 (h)-PR: sc-76291-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Huang, X., et al. 2013. miRNA-95 mediates radioresistance in tumors by targeting the sphingolipid phosphatase SGPP1. Cancer Res. 73: 6972-6986.
2. Cui, N., et al. 2017. PTPN21 protects PC12 cell against oxygen-glucose deprivation by activating Cdk5 through ERK1/2 signaling pathway. Eur. J. Pharmacol. 814: 226-231.

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.