SANTA CRUZ BIOTECHNOLOGY, INC.

PTPRCAP siRNA (h): sc-72055

BACKGROUND

Protein tyrosine phosphorylation influences cell responses including growth, proliferation, differentiation, migration, metabolism and survival. Tyrosine phosphorylation is a reversible process in balance with the activities of protein tyrosine kinases and protein tyrosine phosphatases (PTP). The PTP superfamily includes transmembrane receptor-like PTPs, cytosolic phosphotyrosine specific PTPs, Dual Specificity PTPs (DSP), and Multiple Specificity PTP (MSPs). PTPRCAP (protein tyrosine phosphatase, receptor type, C-associated protein), also designated LPAP or CD45-AP, is 206 amino acid single-pass membrane protein that specifically associated with CD45, a key regulator of T- and B-lymphocyte activation. PTPRCAP stabilizes the association of CD45 with substrates and regulates the threshold of T-cell activation. PTPRCAP is implicated in activating the oncogenic Src family kinases.

REFERENCES

1. Schraven, B., et al. 1994. LPAP, a novel 32-kDa phosphoprotein that interacts with CD45 in human lymphocytes. J. Biol. Chem. 269: 29102-29111.
2. Bruyns, E., et al. 1995. Identification of the sites of interaction between lymphocyte phosphatase-associated phosphoprotein (LPAP) and CD45. J. Biol. Chem. 270: 31372-31376.
3. Fortin, M., et al. 2002. Apoptosis mediated through CD45 is independent of its phosphatase activity and association with leukocyte phosphatase-associated phosphoprotein. J. Immunol. 168: 6084-6089.
4. Nicholas, R.S., et al. 2003. The role of the PTPRC (CD45) mutation in the development of multiple sclerosis in the North West region of the United Kingdom. J. Neurol. Neurosurg. Psychiatr. 74: 944-945.
5. Takeda, A., et al. 2004. CD45-associated protein inhibits CD45 dimerization and up-regulates its protein tyrosine phosphatase activity. Blood 103: 3440-3447.
6. Cocco, E., et al. 2004. PTPRC (CD45) C77G mutation does not contribute to multiple sclerosis susceptibility in Sardinian patients. J. Neurol. 251: 1085-1088.
7. Maljaei, S.H., et al. 2005. Usefulness of CD45 density in the diagnosis of B-cell chronic lymphoproliferative disorders. Indian J. Med. Sci. 59: 187-194.

CHROMOSOMAL LOCATION

Genetic locus: PTPRCAP (human) mapping to 11q13.2.

PRODUCT

PTPRCAP siRNA (h) is a pool of 2 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 PTPRCAP shRNA Plasmid (h): sc-72055-SH and PTPRCAP shRNA (h) Lentiviral Particles: sc-72055-V as alternate gene silencing products.

For independent verification of PTPRCAP (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-72055A and sc-72055B.

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

PTPRCAP siRNA (h) is recommended for the inhibition of PTPRCAP 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

PTPRCAP (17A5): sc-59290 is recommended as a control antibody for monitoring of PTPRCAP 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 PTPRCAP gene expression knockdown using RT-PCR Primer: PTPRCAP (h)-PR: sc-72055-PR (20 µl). 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.