SANTA CRUZ BIOTECHNOLOGY, INC.

RPTPα siRNA (h): sc-44082

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The Power to Question

BACKGROUND

Receptor protein-tyrosine phosphatase α (RPTPα) dephosphorylates and activates Src family tyrosine kinases and influences the regulation of integrin signaling, cell adhesion and growth factor responsiveness. RPTPα contains an extracellular domain, a single transmembrane segment and two tandem intracytoplasmic catalytic domains, and constitutively forms dimers in the membrane. The human RPTPα sequence encodes a 793 amino acid protein. Mouse RPTPα precipitated from NIH/3T3 cells is constitutively phosphorylated at Ser 180/Ser 204. RPTPα also serves as a receptor for *Helicobacter pylori* vacuolating cytotoxin, VacA.

REFERENCES

1. Tracy, S., et al. 1995. The receptor-like protein-tyrosine phosphatase, RPTPα, is phosphorylated by protein kinase C on two serines close to the inner face of the plasma membrane. J. Biol. Chem. 270: 10587-10594.
2. Ardini, E., et al. 2000. Expression of protein tyrosine phosphatase α (RPTPα) in human breast cancer correlates with low tumor grade, and inhibits tumor cell growth *in vitro* and *in vivo*. Oncogene 19: 4979-4987.
3. Blanchetot, C. and den Hertog, J. 2000. Multiple interactions between receptor protein-tyrosine phosphatase (RPTP) α and membrane-distal protein-tyrosine phosphatase domains of various RPTPs. J. Biol. Chem. 275: 12446-12452.
4. van der Wijk, T., et al. 2003. Redox-regulated rotational coupling of receptor protein-tyrosine phosphatase α dimers. J. Biol. Chem. 278: 13968-13974.
5. Yahiro, K., et al. 2003. Protein-tyrosine phosphatase a, RPTPα, is a *Helicobacter pylori* VacA receptor. J. Biol. Chem. 278: 19183-19189.
6. von Wichert, G., et al. 2003. RPTPα acts as a transducer of mechanical force on α_v/β_3-integrin-cytoskeleton linkages. J. Cell Biol. 161: 143-153.
7. LocusLink Report (LocusID: 5786). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: PTPRA (human) mapping to 20p13.

PRODUCT

RPTPα 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 RPTPα shRNA Plasmid (h): sc-44082-SH and RPTPα shRNA (h) Lentiviral Particles: sc-44082-V as alternate gene silencing products.

For independent verification of RPTPα (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-44082A, sc-44082B and sc-44082C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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

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

RPTPα (H-4): sc-398203 is recommended as a control antibody for monitoring of RPTPα 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 RPTPα gene expression knockdown using RT-PCR Primer: RPTPα (h)-PR: sc-44082-PR (20 µl, 488 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.