SANTA CRUZ BIOTECHNOLOGY, INC.

LPPR4 siRNA (h): sc-78869

BACKGROUND

Phosphatidate phosphatases are a family of integral membrane glycoproteins that dephosphorylate a variety of lipid phosphates and play a role in signal transduction via the phospholipase D pathway. PAP-2 proteins function independently of Mg^{2+} and are insensitive to NEM (N-ethylmaleimide) inhibition. The lipid phosphates degraded by this family include ceramide 1-phosphate (C1P), sphingosine 1-phosphate (S1P), phosphatidic acid (PA) and lysophosphatidic acid (LPA). LPPR4 (lipid phosphate phosphatase-related protein type 4), also known as LPR4, PHP1, PRG1 or PRG-1, is a 763 amino acid multi-pass membrane protein that belongs to the PA-phosphatase related phosphoesterase family. Exclusively expressed in neurons, LPPR4 hydrolyzes lysophosphatidic acid (LPA) and facilitates axonal outgrowth during development and regenerative sprouting. LPPR4 exists as two alternatively spliced isoforms and is encoded by a gene located on human chromosome 1p21.2.

REFERENCES

1. Seki, N., et al. 1997. Characterization of cDNA clones in size-fractionated cDNA libraries from human brain. DNA Res. 4: 345-349.
2. Bräuer, A.U., et al. 2003. A new phospholipid phosphatase, PRG-1, is involved in axon growth and regenerative sprouting. Nat. Neurosci. 6: 572-578.
3. Savaskan, N.E., et al. 2004. Molecular cloning and expression regulation of PRG-3, a new member of the plasticity-related gene family. Eur. J. Neurosci. 19: 212-220.
4. Sigal, Y.J., et al. 2005. Integral membrane lipid phosphatases/phosphotransferases: common structure and diverse functions. Biochem. J. 387: 281-293.
5. Tanic, N., et al. 2006. Identification of differentially expressed mRNA transcripts in drug-resistant versus parental human melanoma cell lines. Anticancer Res. 26: 2137-2142.
6. Theofilopoulos, S., et al. 2008. Novel function of the human presqualene diphosphate phosphatase as a type II phosphatidate phosphatase in phosphatidylcholine and triacylglyceride biosynthesis pathways. Biochim. Biophys. Acta 1781: 731-742.

CHROMOSOMAL LOCATION

Genetic locus: LPPR4 (human) mapping to 1p21.2.

PRODUCT

LPPR4 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 LPPR4 shRNA Plasmid (h): sc-78869-SH and LPPR4 shRNA (h) Lentiviral Particles: sc-78869-V as alternate gene silencing products.

For independent verification of LPPR4 (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-78869A, sc-78869B and sc-78869C.

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

LPPR4 siRNA (h) is recommended for the inhibition of LPPR4 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

LPPR4 (E-10): sc-377263 is recommended as a control antibody for monitoring of LPPR4 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 LPPR4 gene expression knockdown using RT-PCR Primer: LPPR4 (h)-PR: sc-78869-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.