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PLSCR1 siRNA (h): sc-44028

BACKGROUND

The calcium-dependent plasma membrane protein phospholipid scramblase 1 (PLSCR1) contributes to the transbilayer movement of phosphatidylserine and other membrane phospholipids upon influx of calcium into the cytosol. This movement results in plasma membrane phospholipid remodeling and surface exposure of phosphatidylserine in injured or apoptotic cells, which leads to cell death. Interferons and other cytokines induce expression of PLSCR1, implying that PLSCR1 also functions in cytokine signaling pathways. EGF stimulation results in tyrosine phosphorylation of PLSCR1 on tyrosines 69 and 74, which allows it to interact with Shc, and thereby connecting Src kinase activation to stimulation of the EGF receptor.

REFERENCES

1. Wiedmer, T., et al. 2003. Palmitoylation of phospholipid scramblase 1 controls its distribution between nucleus and plasma membrane. *Biochemistry* 42: 1227-1233.
2. Rami, A., et al. 2003. Spatial resolution of phospholipid scramblase 1 (PLSCR1), caspase-3 activation and DNA-fragmentation in the human hippocampus after cerebral ischemia. *Neurochem. Int.* 43: 79-87.
3. Nanjundan, M., et al. 2003. Plasma membrane phospholipid scramblase 1 promotes EGF-dependent activation of c-Src through the epidermal growth factor receptor. *J. Biol. Chem.* 278: 37413-3748.
4. Frasch, S.C., et al. 2004. Phospholipid flip-flop and phospholipid scramblase 1 (PLSCR1) co-localize to uropod rafts in formylated Met-Leu-Phe-stimulated neutrophils. *J. Biol. Chem.* 279: 17625-17633.
5. Chen, M.H., et al. 2004. Phospholipid scramblase 1 (PLSCR1) contains a non-classical nuclear localization signal with unique binding site in importin α . *J. Biol. Chem.* 280: 10599-10606.
6. Zhao, K.W., et al. 2004. Protein kinase C δ mediates retinoic acid and phorbol myristate acetate-induced phospholipid scramblase 1 gene expression: its role in leukemic cell differentiation. *Blood* 104: 3731-3738.
7. Ben-Efraim, I., et al. 2004. Phospholipid scramblase 1 is imported into the nucleus by a receptor-mediated pathway and interacts with DNA. *Biochemistry* 43: 3518-3526.

CHROMOSOMAL LOCATION

Genetic locus: PLSCR1 (human) mapping to 3q24.

PRODUCT

PLSCR1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PLSCR1 shRNA Plasmid (h): sc-44028-SH and PLSCR1 shRNA (h) Lentiviral Particles: sc-44028-V as alternate gene silencing products.

For independent verification of PLSCR1 (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-44028A, sc-44028B and sc-44028C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PLSCR1 siRNA (h) is recommended for the inhibition of PLSCR1 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 μ M in 66 μ l. 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

PLSCR1 (1E9): sc-59645 is recommended as a control antibody for monitoring of PLSCR1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PLSCR1 gene expression knockdown using RT-PCR Primer: PLSCR1 (h)-PR: sc-44028-PR (20 μ l, 484 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhang, K., et al. 2008. Wogonin induces the granulocytic differentiation of human NB4 promyelocytic leukemia cells and up-regulates phospholipid scramblase 1 gene expression. *Cancer Sci.* 99: 689-695.
2. Choi, H.J., et al. 2015. Targeting interferon response genes sensitizes aromatase inhibitor resistant breast cancer cells to estrogen-induced cell death. *Breast Cancer Res.* 17: 6.
3. Cheshenko, N., et al. 2018. Herpes simplex viruses activate phospholipid scramblase to redistribute phosphatidylserines and Akt to the outer leaflet of the plasma membrane and promote viral entry. *PLoS Pathog.* 14: e1006766.

RESEARCH USE

For research use only, not for use in diagnostic procedures.