

PLSCR3 siRNA (m): sc-62829

BACKGROUND

The calcium-dependent mitochondrial membrane protein PLSCR3 (phospholipid scramblase 3), also known as PLS3, is a member of the phospholipid scramblase (PLS) family. The PLS family consists of membrane-bound enzymes that participate in the bi-directional movement of phospholipids. PLSCR3 is expressed in a wide variety of tissues but is not found in brain, liver or testis. It is involved in the regulation of mitochondrial respiratory function, morphology and apoptotic responses. More specifically, PLSCR3 is responsible for mediating the transport of cardiolipin from the inner mitochondrial membrane to the outer mitochondrial membrane. Cardiolipin is a major polyglycerophospholipid that plays a role in the regulation of mitochondrial enzymes involved in the generation of ATP. PLSCR3 activity is activated/phosphorylated by PKC δ and PLSCR3 functions as a downstream effector in PKC δ -induced apoptosis.

REFERENCES

1. Wiedmer, T., et al. 2000. Identification of three new members of the phospholipid scramblase gene family. *Biochim. Biophys. Acta* 1467: 244-253.
2. Liu, J., et al. 2003. Phospholipid scramblase 3 controls mitochondrial structure, function, and apoptotic response. *Mol. Cancer Res.* 1: 892-902.
3. Liu, J., et al. 2003. Phospholipid scramblase 3 is the mitochondrial target of protein kinase C δ -induced apoptosis. *Cancer Res.* 63: 1153-1156.
4. Wiedmer, T., et al. 2004. Adiposity, dyslipidemia, and Insulin resistance in mice with targeted deletion of phospholipid scramblase 3 (PLSCR3). *Proc. Natl. Acad. Sci. USA* 101: 13296-13301.
5. He, Y., et al. 2005. N-benzyladriamycin-14-valerate (AD198) induces apoptosis through protein kinase C- δ induced phosphorylation of phospholipid scramblase 3. *Cancer Res.* 65: 10016-10023.
6. Phillippe, M., et al. 2006. Phospholipid scramblase isoform expression in pregnant rat uterus. *J. Soc. Gynecol. Investig.* 13: 497-501.
7. Van, Q., et al. 2007. Phospholipid scramblase-3 regulates cardiolipin *de novo* biosynthesis and its resynthesis in growing HeLa cells. *Biochem. J.* 401: 103-109.
8. Mutch, D.M., et al. 2007. Mobilization of pro-inflammatory lipids in obese Plscr3-deficient mice. *Genome Biol.* 8: R38.

CHROMOSOMAL LOCATION

Genetic locus: Plscr3 (mouse) mapping to 11 B3.

PRODUCT

PLSCR3 siRNA (m) 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 PLSCR3 shRNA Plasmid (m): sc-62829-SH and PLSCR3 shRNA (m) Lentiviral Particles: sc-62829-V as alternate gene silencing products.

For independent verification of PLSCR3 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62829A, sc-62829B and sc-62829C.

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

PLSCR3 siRNA (m) is recommended for the inhibition of PLSCR3 expression in mouse 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

PLSCR3 (SQ-9): sc-100808 is recommended as a control antibody for monitoring of PLSCR3 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 PLSCR3 gene expression knockdown using RT-PCR Primer: PLSCR3 (m)-PR: sc-62829-PR (20 μ l). 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.