SANTA CRUZ BIOTECHNOLOGY, INC.

PLC γ1 siRNA (m): sc-36265

BACKGROUND

Phosphoinositide-specific phospholipase C (PLC) plays a crucial role in the initiation of receptor mediated signal transduction through the generation of the two second messengers, inositol 1,4,5-triphosphate and diacylglycerol from phosphatidylinositol 4,5-bisphosphate. There are many mammalian PLC isozymes, including PLC β1, PLC β2, PLC β3, PLC β4, PLC γ1, PLC γ2, PLC δ1, PLC δ2 and PLC ε. PLC γ1 is widely distributed in bronchiolar epithelium, type I and II pneumocytes and fibroblasts of the interstitial tissue. Actin-regulatory protein Villin is tyrosine phosphorylated and associates with PLC γ1 in the brush border of intestinal epithelial cells. Villin regulates PLC γ1 activity by modifying its own ability to bind phosphatidylinositol 4,5-biphosphate. PLC γ1 binds Integrin α1/β1 and modulates Integrin α1/β-specific adhesion. PLC γ1 and Ca^{2+} play a direct role in VEGF-regulated endothelial growth, however this signaling pathway is not linked to FGF-mediated effects in primary endothelial cells. PLC γ1 is rapidly activated in response to growth factor stimulation and plays an important role in regulating cell proliferation and differentiation. It may also have a protective function during cellular response to oxidative stress.

REFERENCES

1. Suh, P., et al. 1988. Inositol phospholipid-specific phospholipase C: complete cDNA and protein sequences and sequence homology to tyrosine kinase-related oncogene products. Proc. Natl. Acad. Sci. USA 85: 5419-5423.
2. Emori, Y., et al. 1989. A second type of rat phosphoinositide-specific phospholipase C containing a Src-related sequence not essential for phosphoinositide-hydrolyzing activity. J. Biol. Chem. 264: 21885-21890.

CHROMOSOMAL LOCATION

Genetic locus: Plcg1 (mouse) mapping to 2 H2.

PRODUCT

PLC γ1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PLC γ1 shRNA Plasmid (m): sc-36265-SH and PLC γ1 shRNA (m) Lentiviral Particles: sc-36265-V as alternate gene silencing products.

For independent verification of PLC γ1 (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-36265A, sc-36265B and sc-36265C.

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

PLC γ1 siRNA (m) is recommended for the inhibition of PLC γ1 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 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

PLC γ1 (E-12): sc-7290 is recommended as a control antibody for monitoring of PLC γ1 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 PLC γ1 gene expression knockdown using RT-PCR Primer: PLC γ1 (m)-PR: sc-36265-PR (20 µl, 524 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Sreedhar, A., et al. 2017. UCP2 upregulation promotes PLCγ-1 signaling during skin cell transformation. Mol. Carcinog. 56: 2290-2300.
2. Moenning, A., et al. 2009. Sustained platelet-derived growth factor receptor α signaling in osteoblasts results in craniosynostosis by overactivating the phospholipase C-γ pathway. Mol. Cell. Biol. 29: 881-891.

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.