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SANTA CRUZ BIOTECHNOLOGY, INC.

PLC δ4 siRNA (m): sc-45854

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 (IP3) and diacylglycerol (DAG) from phosphatidylinositol 4,5-bisphosphate. There are several mammalian PLC proteins, including PLC β1, PLC β2, PLC β3, PLC β4, PLCγ1, PLCγ2, PLC δ1, PLC δ3, PLC δ4 and PLCe. PLC δ1, a calcium signal amplifier, is activated by an atypical GTP-binding protein and functions as an effector for GTP-binding protein transglutaminase II-mediated oxytocin receptor and α_{1B}-adrenoreceptor signaling. PLC δ1 is highly expressed in brain, heart, lung and testis and is abnormally accumulated in autopsied brains with Alzheimer's disease (AD), suggesting that it may play a role in the pathology of AD. Both PLC δ3 and PLC δ4 contain several functional domains through which they bind calcium as a cofactor and catalyze the creation of DAG and IP3, playing an essential role in signal transduction. PLC δ4 is highly expressed in skeletal muscle and kidney tissue, as well as in corneal epithelial cells, suggesting a role in the regulation of kidney and ocular function.

REFERENCES

1. Lee, K.H., et al. 1995. Evidence suggesting a role for phospholipase C isozyme, PLC δ1 in corticomedullary osmotic gradients in rat kidneys. Biochem. Mol. Biol. Int. 37: 25-31.
2. Liu N., et al. 1996. A new phospholipase C δ4 is induced at S phase of the cell cycle and appears in the nucleus. J. Biol. Chem. 1: 355-360.
3. Lee, K.H., et al. 1997. Attenuation of renomedullary phospholipase C isozyme, PLC δ1, in spontaneously hypertensive rats. Biochem. Mol. Biol. Int. 43: 741-747.
4. Matecki, A., et al. 1997. Effect of sphingomyelin and its metabolites on the activity of human recombinant PLC δ1. Int. J. Biochem. Cell Biol. 29: 815-828.
5. Tachibana T., et al. 2002. Analysis of gene expression following spinal cord injury in rat using complementary DNA microarray. Neurosci. Lett. 327: 133-137.
6. Leung, D.W., et al. 2004. Phospholipase C δ4 overexpression upregulates ErbB1/2 expression, Erk signaling pathway and proliferation in MCF-7 cells. Mol. Cancer 3: 15.

CHROMOSOMAL LOCATION

Genetic locus: Plcd4 (mouse) mapping to 1 C3.

PRODUCT

PLC δ4 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 δ4 shRNA Plasmid (m): sc-45854-SH and PLC δ4 shRNA (m) Lentiviral Particles: sc-45854-V as alternate gene silencing products.

For independent verification of PLC δ4 (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-45854A, sc-45854B and sc-45854C.

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 δ4 siRNA (m) is recommended for the inhibition of PLC δ4 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 δ4 (B-2): sc-373875 is recommended as a control antibody for monitoring of PLC δ4 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 δ4 gene expression knockdown using RT-PCR Primer: PLC δ4 (m)-PR: sc-45854-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.