SANTA CRUZ BIOTECHNOLOGY, INC.

PLC β2 siRNA (h): sc-36270

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, PLCγ1, PLCγ2, PLC δ1, PLC δ2 and PLC ε). PLC βs are the only PLC isforms that are regulated by G protein subunits and are activated by a heterotrimeric GTP-binding protein linked to various cell surface receptors. Two alternatively spliced forms (1,181 and 1,166 amino acids) of PLC β2 are generated in hematopoietic cells that differ in the carboxyl terminal sequence implicated in interaction of PLC β enzymes with $G_{\alpha\ q}$. The pleckstrin homology domain of PLC β2 is required for its targeting to the membrane and for substrate hydrolysis and its linker region exerts an inhibitory efect on basal PLC β2 activity. PLC β2 plays a major role in platelet activation and is mainly expressed in the periphery of the islet and acinar cells in rat pancreas.

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.
3. Meldrum, E., et al. 1991. A second gene product of the inositol-phospholipid-specific phospholipase Cδ subclass. Eur. J. Biochem. 196: 159-165.

CHROMOSOMAL LOCATION

Genetic locus: PLCB2 (human) mapping to 15q15.1.

PRODUCT

PLC β2 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 PLC β2 shRNA Plasmid (h): sc-36270-SH and PLC β2 shRNA (h) Lentiviral Particles: sc-36270-V as alternate gene silencing products.

For independent verification of PLC β2 (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-36270A, sc-36270B and sc-36270C.

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 β2 siRNA (h) is recommended for the inhibition of PLC β2 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

PLC β2 (B-2): sc-515912 is recommended as a control antibody for monitoring of PLC β2 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 β2 gene expression knockdown using RT-PCR Primer: PLC β2 (h)-PR: sc-36270-PR (20 µl, 511 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lau, W.W., et al. 2013. $G_{\beta\ \gamma}$-mediated activation of protein kinase D exhibits subunit specificity and requires $G_{\beta\ \gamma}$-responsive phospholipase Cβ isoforms. Cell Commun. Signal. 11: 22.
2. Brugnoli, F., et al. 2016. PLC β2 is modulated by low oxygen availability in breast tumor cells and plays a phenotype dependent role in their hypoxia-related malignant potential. Mol. Carcinog. 55: 2210-2221.

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.