SANTA CRUZ BIOTECHNOLOGY, INC.

PKC β siRNA (h): sc-29450

BACKGROUND

Members of the protein kinase C (PKC) family play a key regulatory role in a variety of cellular functions, including cell growth and differentiation, gene expression, hormone secretion and membrane function. PKCs were originally identified as serine/threonine protein kinases whose activity was dependent on calcium and phospholipids. Diacylglycerols (DAG) and tumor promoting phorbol esters bind to and activate PKC. PKCs can be subdivided into at least two major classes, including conventional (c) PKC isoforms (α, βI, βII and γ) and novel (n) PKC isoforms (δ, ε, ζ, η, θ, λ/ι, μ and ν). Patterns of expression for each PKC isoform differ among tissues and PKC family members exhibit clear differences in their cofactor dependencies. For instance, the kinase activities of PKC δ and ε are independent of Ca^{2+}. On the other hand, most of the other PKC members possess phorbol ester-binding activities and kinase activities.

REFERENCES

1. Takai, Y., et al. 1979. Calcium-dependent activation of a multifunctional protein kinase by membrane phospholipids. J. Biol. Chem. 254: 3692-3695.
2. Castagna, M., et al. 1982. Direct activation of calcium-activated, phospholipid-dependent protein kinase by tumor-promoting phorbol esters. J. Biol. Chem. 257: 7847-7851.
3. Kikkawa, U., et al. 1983. Protein kinase C as a possible receptor of tumor-promoting phorbol esters. J. Biol. Chem. 258: 11442-11445.

CHROMOSOMAL LOCATION

Genetic locus: PRKCB (human) mapping to 16p12.2.

PRODUCT

PKC β 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 PKC β shRNA Plasmid (h): sc-29450-SH and PKC β shRNA (h) Lentiviral Particles: sc-29450-V as alternate gene silencing products.

For independent verification of PKC β (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-29450A, sc-29450B and sc-29450C.

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

PKC β siRNA (h) is recommended for the inhibition of PKC β 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

PKC βI (E-3): sc-8049 is recommended as a control antibody for monitoring of PKC β 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 PKC β gene expression knockdown using RT-PCR Primer: PKC β (h)-PR: sc-29450-PR (20 µl, 464 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Pedram, A., et al. 2006. Functional estrogen receptors in the mitochondria of breast cancer cells. Mol. Biol. Cell 17: 2125-2137.
2. Lassarre, C., et al. 2013. Platelet-derived growth factor negatively regulates the Insulin-like growth factor signaling pathway through the coordinated action of phosphatidylinositol 3-kinase and protein kinase C β I. Biochim. Biophys. Acta 1833: 1367-1377.
3. Herbst-Robinson, K.J., et al. 2015. Inflammatory eicosanoids increase amyloid precursor protein expression via activation of multiple neuronal receptors. Sci. Rep. 5: 18286.
4. Yamaguchi, R., et al. 2018. Di-(2-ethylhexyl) phthalate suppresses IL-12p40 production by GM-CSF-dependent macrophages via the PPARα/TNFAIP3/TRAF6 axis after lipopolysaccharide stimulation. Hum. Exp. Toxicol. 37: 596-607.
5. Takahashi, H., et al. 2019. Phosphorylation and inhibition of ceramide kinase by protein kinase C-β: their changes by serine residue mutations. Cell. Signal. 54: 59-68.
6. Yoon, J., et al. 2020. A Jun N-terminal kinase inhibitor induces ectodomain shedding of the cancerassociated membrane protease Prss14/epithin via protein kinase CβII. J. Biol. Chem. 295: 7168-7177.
7. Feng, J., et al. 2022. AKAP1 contributes to impaired mtDNA replication and mitochondrial dysfunction in podocytes of diabetic kidney disease. Int. J. Biol. Sci. 18: 4026-4042.

RESEARCH USE

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