

PKC siRNA (h): sc-29449

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 , β I, β II 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.

CHROMOSOMAL LOCATION

Genetic locus: PRKCA (human) mapping to 17q24.2.

PRODUCT

PKC siRNA (h) is a pool of 5 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 PKC shRNA Plasmid (h): sc-29449-SH and PKC shRNA (h) Lentiviral Particles: sc-29449-V as alternate gene silencing products.

For independent verification of PKC (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-29449A, sc-29449B and sc-29449C, sc-29449D and sc-29449E.

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

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

PKC (A-3): sc-17769 is recommended as a control antibody for monitoring of PKC 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).

SELECT PRODUCT CITATIONS

1. Xin, M., et al. 2007. Protein kinase C ζ abrogates the proapoptotic function of Bax through phosphorylation. *J. Biol. Chem.* 282: 21268-21277.
2. Brandt, S., et al. 2009. Helicobacter pylori activates protein kinase C δ to control Raf in MAP kinase signalling: role in AGS epithelial cell scattering and elongation. *Cell Motil. Cytoskeleton* 66: 874-892.
3. Isowa, S., et al. 2010. PTHrP regulates angiogenesis and bone resorption via VEGF expression. *Anticancer Res.* 30: 2755-2767.
4. Moon, U.Y., et al. 2010. AP2 α is essential for MUC8 gene expression in human airway epithelial cells. *J. Cell. Biochem.* 110: 1386-1398.
5. Wen, J., et al. 2011. Specific PKC isoforms regulate LPS-stimulated iNOS induction in murine microglial cells. *J. Neuroinflammation* 8: 38.
6. Bluwstein, A., et al. 2013. PKC signaling prevents irradiation-induced apoptosis of primary human fibroblasts. *Cell Death Dis.* 4: e498.
7. Tobio, A., et al. 2013. Protein kinase C modulates Aurora-kinase inhibition induced by CCT129202 in HMC-1^{560,816} cell line. *Antiinflamm. Antiallergy Agents Med. Chem.* 12: 265-276.
8. Illing, S., et al. 2014. Heterologous regulation of agonist-independent μ -opioid receptor phosphorylation by protein kinase C. *Br. J. Pharmacol.* 171: 1330-1340.
9. Zhao, X., et al. 2014. Hypoxia-inducible factor-1 promotes pancreatic ductal adenocarcinoma invasion and metastasis by activating transcription of the Actin-bundling protein fascin. *Cancer Res.* 74: 2455-2464.
10. Noppakunmongkolchai, W., et al. 2016. Inhibition of protein kinase C promotes dengue virus replication. *Virology* 13: 35.
11. Andersson, A., et al. 2016. PKC α and HMGB1 antagonistically control hydrogen peroxide-induced poly-ADP-ribose formation. *Nucleic Acids Res.* 44: 7630-7645.

RESEARCH USE

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