SANTA CRUZ BIOTECHNOLOGY, INC.

PKC ε siRNA (h): sc-36251

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 differs 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.

CHROMOSOMAL LOCATION

Genetic locus: PRKCE (human) mapping to 2p21.

PRODUCT

PKC ε 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 ε shRNA Plasmid (h): sc-36251-SH and PKC ε shRNA (h) Lentiviral Particles: sc-36251-V as alternate gene silencing products.

For independent verification of PKC ε (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-36251A, sc-36251B and sc-36251C.

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 ε siRNA (h) is recommended for the inhibition of PKC ε 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 ε (E-5): sc-1681 is recommended as a control antibody for monitoring of PKC ε 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 ε gene expression knockdown using RT-PCR Primer: PKC ε (h)-PR: sc-36251-PR (20 µl, 507 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lu, D., et al. 2006. Protein kinase C ε activates protein kinase B/Akt via DNA-PK to protect against tumor necrosis factor-α-induced cell death. J. Biol. Chem. 281: 22799-22807.
2. Valkova, C., et al. 2007. Protein kinase Cε may act as EGF-inducible scaffold protein for phospholipase Cγ1. Cell. Signal. 19: 1830-1843.
3. Hu, B., et al. 2009. Protein kinase C ε is involved in ionizing radiation induced bystander response in human cells. Int. J. Biochem. Cell Biol. 41: 2413-2421.
4. Adhikary, G., et al. 2010. PKC-δ and -η, MEKK-1, MEK-6, MEK-3, and p38-δ are essential mediators of the response of normal human epidermal keratinocytes to differentiating agents. J. Invest. Dermatol. 130: 2017-2030.
5. Alcolado, N., et al. 2011. VIP-dependent increase in F508del-CFTR membrane localization is mediated by PKCε. Am. J. Physiol. Cell Physiol. 301: C53-C65.
6. Kedei, N., et al. 2011. The synthetic bryostatin analog Merle 23 dissects distinct mechanisms of bryostatin activity in the LNCaP human prostate cancer cell line. Biochem. Pharmacol. 81: 1296-1308.
7. Lemjabbar-Alaoui, H., et al. 2011. TACE/ADAM-17 phosphorylation by PKC-ε mediates premalignant changes in tobacco smoke-exposed lung cells. PLoS ONE 6: e17489.
8. Huang, B., et al. 2011. The expression and role of protein kinase C (PKC) ε in clear cell renal cell carcinoma. J. Exp. Clin. Cancer Res. 30: 88.
9. Illing, S., et al. 2014. Heterologous regulation of agonist-independent μ-opioid receptor phosphorylation by protein kinase C. Br. J. Pharmacol. 171: 1330-1340.
10. Do Van, B., et al. 2016. Ferroptosis, a newly characterized form of cell death in Parkinson's disease that is regulated by PKC. Neurobiol. Dis. 94: 169-178.
11. Sen, A., et al. 2018. Loss in PKC ε causes downregulation of MnSOD and BDNF expression in neurons of Alzheimer's disease hippocampus. J. Alzheimers Dis. 63: 1173-1189.

RESEARCH USE

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