SANTA CRUZ BIOTECHNOLOGY, INC.

PKC θ siRNA (h): sc-36252

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.

CHROMOSOMAL LOCATION

Genetic locus: PRKCQ (human) mapping to 10p15.1.

PRODUCT

PKC θ siRNA (h) is a target-specific 19-25 nt siRNA 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 θ shRNA Plasmid (h): sc-36252-SH and PKC θ shRNA (h) Lentiviral Particles: sc-36252-V as alternate gene silencing products.

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 θ siRNA (h) is recommended for the inhibition of PKC θ 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 θ (E-7): sc-1680 is recommended as a control antibody for monitoring of PKC θ 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 θ gene expression knockdown using RT-PCR Primer: PKC θ (h)-PR: sc-36252-PR (20 µl, 434 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. Lee, J.Y., et al. 2012. AMP-activated protein kinase mediates T cell activation-induced expression of FasL and COX-2 via protein kinase C θ-dependent pathway in human Jurkat T leukemia cells. Cell. Signal. 24: 1195-1207.
3. Maubach, G., et al. 2013. Ca^{2+}/calmodulin-dependent kinase II contributes to inhibitor of nuclear factor-κB kinase complex activation in *Helicobacter pylori* infection. Int. J. Cancer 133: 1507-1512.
4. Sourbier, C., et al. 2013. Englerin A stimulates PKC θ to inhibit Insulin signaling and to simultaneously activate HSF1: pharmacologically induced synthetic lethality. Cancer Cell 23: 228-237.
5. Zafar, A., et al. 2014. Chromatinized protein kinase C-θ directly regulates inducible genes in epithelial to mesenchymal transition and breast cancer stem cells. Mol. Cell. Biol. 34: 2961-2980.
6. Zafar, A., et al. 2015. The role of protein kinase-C θ in control of epithelial to mesenchymal transition and cancer stem cell formation. Genom. Data 3: 28-32.
7. McCuaig, R.D., et al. 2015. PKC θ is a novel SC35 splicing factor regulator in response to T cell activation. Front. Immunol. 6: 562.
8. Boulding, T., et al. 2016. Differential roles for DUSP family members in epithelial-to-mesenchymal transition and cancer stem cell regulation in breast cancer. PLoS ONE 11: e0148065.
9. Li, J., et al. 2016. Nuclear PKC θ facilitates rapid transcriptional responses in human memory $CD4^+$ T cells through p65 and H2B phosphorylation. J. Cell Sci. 129: 2448-2461.

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.