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PI 4-kinase β siRNA (m): sc-45717

BACKGROUND

The members of the phosphatidylinositol kinase (PIK) superfamily can be divided into three groups based on their substrate specificity. PIKs convert phosphatidylinositol (PI) into PI phosphate [PI(3)P], PI phosphate [PI(4)P], PI bisphosphate [PI(4, 5)P₂] and PI triphosphate [PI(3, 4, 5)P₃]. The first group, the PI 3-kinases, is composed of highly related proteins designated p110 α , p110 β , p110 γ and p110 δ which convert PI into PI(3)P and PI(4, 5)P₂ into PI(3, 4, 5)P₃. The second group, the PI 4-kinases, convert PI into PI(4)P. The third group, the PI(4)P5-kinases, convert PI(4)P into PI(4, 5)P₂. Phosphatidylinositides represent important regulatory molecules and are involved in a diverse array of signaling pathways. Phosphatidylinositol biphosphate acts as an activator of PKCs and as a substrate for PLC γ , which converts the molecule into the second messengers, inositol-1, 4, 5 triphosphate and 1, 2-diacylglycerol. PI(3, 4, 5)P₃ has been shown to activate the PKC ζ isoform. PI 4-kinase β is a cytoplasmic protein inhibited by wortmannin.

REFERENCES

1. Woscholski, R., et al. 1994. Biochemical characterization of the free catalytic p110 α and the complexed heterodimeric p110 α .p85 α forms of the mammalian phosphatidylinositol 3-kinase. *J. Biol. Chem.* 269: 25067-25072.
2. Woscholski, R., et al. 1994. A comparison of demethoxyviridin and wortmannin as inhibitors of phosphatidylinositol 3-kinase. *FEBS. Lett.* 342: 109-114.
3. Hunter, T., et al. 1995. When is a lipid kinase not a lipid kinase? When it is a protein kinase. *Cell* 83: 1-4.
4. Zhou, K., et al. 1995. A phosphatidylinositol (PI) kinase gene family in *Dictyostelium discoideum*: biological roles of putative mammalian p110 and yeast Vps34p PI 3-kinase homologs during growth and development. *Mol. Cell. Biol.* 15: 5645-5656.
5. Wong, K., et al. 1997. Subcellular locations of phosphatidylinositol 4-kinase isoforms. *J. Biol. Chem.* 272: 13236-13241.
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CHROMOSOMAL LOCATION

Genetic locus: Pik4cb (mouse) mapping to 3 F2.1.

PRODUCT

PI 4-kinase β siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PI 4-kinase β shRNA Plasmid (m): sc-45717-SH and PI 4-kinase β shRNA (m) Lentiviral Particles: sc-45717-V as alternate gene silencing products.

For independent verification of PI 4-kinase β (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-45717A, sc-45717B and sc-45717C.

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

PI 4-kinase β siRNA (m) is recommended for the inhibition of PI 4-kinase β expression in mouse 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

PI 4-kinase β (E-4): sc-166615 is recommended as a control antibody for monitoring of PI 4-kinase 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 PI 4-kinase β gene expression knockdown using RT-PCR Primer: PI 4-kinase β (m)-PR: sc-45717-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.