SANTA CRUZ BIOTECHNOLOGY, INC.

PI 3-kinase p110δ siRNA (h): sc-39131

BACKGROUND

Phosphatidylinositol 3-kinase (PI 3-kinase) is composed of p85 and p110 subunits. p85 lacks PI 3-kinase activity and acts as an adapter, coupling p110 to activated protein tyrosine kinase. Two forms of p85 have been described (p85α and p85β), each possessing one SH3 and two SH2 domains. Various p110 forms have been identified. p110α and p110β interact with p85α, and p110α has also been shown to interact with p85β *in vitro*. It has been shown to bind p85α and β, but it apparently does not phosphorylate these subunits. p110δ has the capacity to autophosphorylate and results in the nearly complete inactivation of the lipid kinase activity. Interestingly, p110γ does not interact with the p85 subunits and has been shown to be activated by α and βγ heterotrimeric G proteins. Two p110δ isoforms have been identified and are widely expressed. Isoform 1 is expressed predominantly in leukocytes while isoform 2 is expressed in normal thymus, lung and spleen tissues.

REFERENCES

1. Skolnik, E.Y., et al. 1991. Cloning of PI 3 kinase-associated p85 utilizing a novel method for expression/cloning of target proteins for receptor tyrosine kinases. Cell 65: 83-90.
2. Otsu, M., et al. 1991. Characterization of two 85 kDa proteins that associate with receptor tyrosine kinases, middle-T/pp60-src complexes and PI 3-kinase. Cell 65: 91-104.
3. Hiles, I.D., et al. 1992. Phosphatidylinositol 3-kinase: structure and expression of the 110 kDa catalytic subunit. Cell 70: 419-429.
4. Hu, P., et al. 1993. Cloning of a novel, ubiquitously expressed human phosphatidylinositol 3-kinase and identification of its binding site on p85. Mol. Cell. Biol. 13: 7677-7688.
5. Stoyanov, B., et al. 1995. Cloning and characterization of a G protein-activated human phosphoinositide-3 kinase. Science 269: 690-693.

CHROMOSOMAL LOCATION

Genetic locus: PIK3CD (human) mapping to 1p36.22.

PRODUCT

PI 3-kinase p110δ 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 PI 3-kinase p110δ shRNA Plasmid (h): sc-39131-SH and PI 3-kinase p110δ shRNA (h) Lentiviral Particles: sc-39131-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

PI 3-kinase p110δ siRNA (h) is recommended for the inhibition of PI 3-kinase p110δ 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

PI 3-kinase p110δ (A-8): sc-55589 is recommended as a control antibody for monitoring of PI 3-kinase p110δ 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 3-kinase p110δ gene expression knockdown using RT-PCR Primer: PI 3-kinase p110δ (h)-PR: sc-39131-PR (20 µl, 518 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Fransson, S., et al. 2012. p37δ is a new isoform of PI3K p110δ that increases cell proliferation and is overexpressed in tumors. Oncogene 31: 3277-3286.
2. Liu, G., et al. 2013. MiR-27a regulates apoptosis in nucleus pulposus cells by targeting PI3K. PLoS ONE 8: e75251.
3. Zhou, T., et al. 2018. Runt-related transcription factor 1 (RUNX1) promotes TGF-β-induced renal tubular epithelial-to-mesenchymal transition (EMT) and renal fibrosis through the PI3K subunit p110δ. EBioMedicine 31: 217-225.
4. Che, N., et al. 2021. Adiponectin enhances B-cell proliferation and differentiation via activation of Akt1/STAT3 and exacerbates collagen-induced arthritis. Front. Immunol. 12: 626310.

RESEARCH USE

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