

# PLC $\gamma$ 1 siRNA (h): sc-29452

## BACKGROUND

Phosphoinositide-specific phospholipase C (PLC) plays a critical role in the initiation of receptor mediated signal transduction through the generation of the two second messengers, inositol 1,4,5-triphosphate and diacylglycerol from phosphatidylinositol 4,5-bisphosphate. There are many mammalian PLC isozymes, including PLC  $\beta$ 1, PLC  $\beta$ 2, PLC  $\beta$ 3, PLC  $\beta$ 4, PLC  $\gamma$ 1, PLC  $\gamma$ 2, PLC  $\delta$ 1, PLC  $\delta$ 2 and PLC  $\epsilon$ . PLC  $\gamma$ 1 is widely distributed in bronchiolar epithelium, type I and II pneumocytes and fibroblasts of the interstitial tissue. Actin-regulatory protein Villin is tyrosine phosphorylated and associates with PLC  $\gamma$ 1 in the brush border of intestinal epithelial cells. Villin regulates PLC  $\gamma$ 1 activity by modifying its own ability to bind phosphatidylinositol 4,5-bisphosphate. PLC  $\gamma$ 1 binds Integrin  $\alpha$ 1/ $\beta$ 1 and modulates Integrin  $\alpha$ 1/ $\beta$ -specific adhesion. PLC  $\gamma$ 1 and  $\text{Ca}^{2+}$  play a direct role in VEGF-regulated endothelial growth, however this signaling pathway is not linked to FGF-mediated effects in primary endothelial cells. PLC  $\gamma$ 1 is rapidly activated in response to growth factor stimulation and plays an important role in regulating cell proliferation and differentiation. It may also have a protective function during cellular response to oxidative stress.

## CHROMOSOMAL LOCATION

Genetic locus: PLCG1 (human) mapping to 20q12.

## PRODUCT

PLC  $\gamma$ 1 siRNA (h) is a pool of 4 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PLC  $\gamma$ 1 shRNA Plasmid (h): sc-29452-SH and PLC  $\gamma$ 1 shRNA (h) Lentiviral Particles: sc-29452-V as alternate gene silencing products.

For independent verification of PLC  $\gamma$ 1 (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-29452A, sc-29452B, sc-29452C and sc-29452D.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at  $-20^{\circ}\text{C}$  with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at  $-20^{\circ}\text{C}$ , avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

PLC  $\gamma$ 1 siRNA (h) is recommended for the inhibition of PLC  $\gamma$ 1 expression in human cells.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## 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  $\mu$ M in 66  $\mu$ 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.

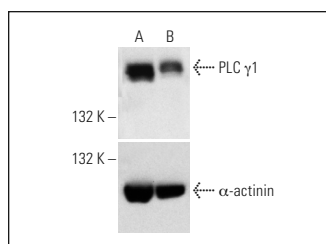
## GENE EXPRESSION MONITORING

PLC  $\gamma$ 1 (E-12): sc-7290 is recommended as a control antibody for monitoring of PLC  $\gamma$ 1 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 PLC  $\gamma$ 1 gene expression knockdown using RT-PCR Primer: PLC  $\gamma$ 1 (h)-PR: sc-29452-PR (20  $\mu$ l, 473 bp). Annealing temperature for the primers should be  $55-60^{\circ}\text{C}$  and the extension temperature should be  $68-72^{\circ}\text{C}$ .

## DATA



PLC  $\gamma$ 1 siRNA (h): sc-29452. Western blot analysis of PLC  $\gamma$ 1 expression in non-transfected control (A) and PLC  $\gamma$ 1 siRNA transfected (B) HeLa cells. Blot probed with PLC  $\gamma$ 1 (E-12): sc-7290.  $\alpha$ -actinin (H-2): sc-17829 used as specificity and loading control.

## SELECT PRODUCT CITATIONS

- Han, S., et al. 2008. PPAR $\beta$ / $\delta$  agonist stimulates human lung carcinoma cell growth through inhibition of PTEN expression: the involvement of PI3K and NF $\kappa$ B signals. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 294: L1238-L1249.
- Xu, M., et al. 2020. OSBP-related protein 5L maintains intracellular IP3/ $\text{Ca}^{2+}$  signaling and proliferation in T cells by facilitating PIP2 hydrolysis. *J. Immunol.* 204: 1134-1145.
- Grebert, C., et al. 2021. Phospholipase C controls chloride-dependent short-circuit current in human bronchial epithelial cells. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 320: L205-L219.

## RESEARCH USE

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