

# PLC $\gamma$ 2 siRNA (h): sc-36268

## 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  $\epsilon$ . After stimulation of the collagen receptor glycoprotein VI in human platelets, PLC  $\gamma$ 2 associates with several tyrosine-phosphorylated proteins (Syk, SLP-76, Lyn, linker for activation of T cells (LAT) and the Fc $\gamma$  chain), which bind to its C-terminal SH2 domain. PLC  $\gamma$ 1 associates with Syk in B cells, but PLC  $\gamma$ 2 does not associate with Syk in platelets. The C-terminal SH2 domain is involved in the regulation of PLC  $\gamma$ 2. In addition, Btk can induce PLC  $\gamma$ 2 tyrosine phosphorylation and initiate calcium mobilization in CD72-stimulated B lymphocytes.

## REFERENCES

1. Suh, P., et al. 1988. Inositol phospholipid-specific phospholipase C: complete cDNA and protein sequences and sequence homology to tyrosine kinase-related oncogene products. *Proc. Natl. Acad. Sci. USA* 85: 5419-5423.
2. Emori, Y., et al. 1989. A second type of rat phosphoinositide-specific phospholipase C containing a Src-related sequence not essential for phosphoinositide-hydrolyzing activity. *J. Biol. Chem.* 264: 21885-21890.
3. Meldrum, E., et al. 1991. A second gene product of the inositol-phospholipid-specific phospholipase C  $\delta$  subclass. *Eur. J. Biochem.* 196: 159-165.

## CHROMOSOMAL LOCATION

Genetic locus: PLCG2 (human) mapping to 16q23.3.

## PRODUCT

PLC  $\gamma$ 2 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  $\gamma$ 2 shRNA Plasmid (h): sc-36268-SH and PLC  $\gamma$ 2 shRNA (h) Lentiviral Particles: sc-36268-V as alternate gene silencing products.

For independent verification of PLC  $\gamma$ 2 (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-36268A, sc-36268B, sc-36268C and sc-36268D.

## 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  $\mu$ 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  $\gamma$ 2 siRNA (h) is recommended for the inhibition of PLC  $\gamma$ 2 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  $\mu$ 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  $\gamma$ 2 (B-10): sc-5283 is recommended as a control antibody for monitoring of PLC  $\gamma$ 2 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PLC  $\gamma$ 2 gene expression knockdown using RT-PCR Primer: PLC  $\gamma$ 2 (h)-PR: sc-36268-PR (20  $\mu$ l, 498 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Hong, J., et al. 2010. Bile acid reflux contributes to development of esoph-ageal adenocarcinoma via activation of phosphatidylinositol-specific phospholipase  $\gamma$ 2 and NADPH oxidase NOX5-S. *Cancer Res.* 70: 1247-1255.
2. Huynh, M.Q., et al. 2015. Expression and pro-survival function of phospholipase  $\gamma$ 2 in diffuse large B-cell lymphoma. *Leuk. Lymphoma* 56: 1088-1095.

## RESEARCH USE

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

## PROTOCOLS

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