

# PIG-Q siRNA (h): sc-62806

## BACKGROUND

Phosphatidylinositol-glycans (PIGs) are multi-pass transmembrane proteins that localize to the endoplasmic reticulum. PIGs exhibit various functions but all are crucial for the biosynthesis of the glycosylphosphatidylinositol (GPI)-anchor. Some PIG proteins are components of the GPI transamidase complex and play a role in the recognition of either the GPI attachment signal or the lipid portion of GPI. Other PIGs belong to the glycosyltransferase complex (GPI-N-acetylglucosaminyltransferase or GPI-GnT) and function in the transfer of N-acetylglucosamine (GlcNAc) to phosphatidylinositol (PI). A variety of other PIGs play distinct roles in GPI synthesis. PIG-Q, also known as GPI1, is a component of the GPI-GnT complex which is responsible for the first step in GPI synthesis, the transfer of GlcNAc to PI from UDP-GlcNAc. PIG-Q acts to stabilize the complex and the expression of other subunits. It is not required for the enzymatic function but a loss of PIG-Q results in a severe defect of the GPI-GnT enzyme.

## REFERENCES

1. Tiede, A., Schubert, J., Nischan, C., Jensen, I., Westfall, B., Taron, C.H., Orlean, P. and Schmidt, R.E. 1998. Human and mouse Gpi1p homologues restore glycosylphosphatidylinositol membrane anchor biosynthesis in yeast mutants. *Biochem. J.* 334: 609-616.
2. Hong, Y., Ohishi, K., Watanabe, R., Endo, Y., Maeda, Y. and Kinoshita, T. 1999. GPI1 stabilizes an enzyme essential in the first step of glycosylphosphatidylinositol biosynthesis. *J. Biol. Chem.* 274: 18582-18588.
3. Watanabe, R., Murakami, Y., Marmor, M.D., Inoue, N., Maeda, Y., Hino, J., Kangawa, K., Julius, M. and Kinoshita, T. 2000. Initial enzyme for glycosylphosphatidylinositol biosynthesis requires PIG-P and is regulated by DPM2. *EMBO J.* 19: 4402-4411.
4. Tiede, A., Nischan, C., Schubert, J. and Schmidt, R.E. 2000. Characterisation of the enzymatic complex for the first step in glycosylphosphatidylinositol biosynthesis. *Int. J. Biochem. Cell Biol.* 32: 339-350.
5. Tiede, A., Daniels, R.J., Higgs, D.R., Mehrein, Y., Schmidt, R.E. and Schubert, J. 2001. The human GPI1 gene is required for efficient glycosylphosphatidylinositol biosynthesis. *Gene* 271: 247-254.
6. Shams-Eldin, H., Azzouz, N., Kedees, M.H., Orlean, P., Kinoshita, T. and Schwarz, R.T. 2002. The GPI1 homologue from *Plasmodium falciparum* complements a *Saccharomyces cerevisiae* GPI1 anchoring mutant. *Mol. Biochem. Parasitol.* 120: 73-81.
7. Delorenzi, M., Sexton, A., Shams-Eldin, H., Schwarz, R.T., Speed, T. and Schofield, L. 2002. Genes for glycosylphosphatidylinositol toxin biosynthesis in *Plasmodium falciparum*. *Infect. Immun.* 70: 4510-4522.
8. Eisenhaber, B., Maurer-Stroh, S., Novatchkova, M., Schneider, G. and Eisenhaber, F. 2003. Enzymes and auxiliary factors for GPI lipid anchor biosynthesis and post-translational transfer to proteins. *Bioessays* 25: 367-385.
9. Pittet, M. and Conzelmann, A. 2007. Biosynthesis and function of GPI proteins in the yeast *Saccharomyces cerevisiae*. *Biochim. Biophys. Acta* 1771: 405-420.

## CHROMOSOMAL LOCATION

Genetic locus: PIGQ (human) mapping to 16p13.3.

## PRODUCT

PIG-Q siRNA (h) 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PIG-Q shRNA Plasmid (h): sc-62806-SH and PIG-Q shRNA (h) Lentiviral Particles: sc-62806-V as alternate gene silencing products.

For independent verification of PIG-Q (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-62806A, sc-62806B and sc-62806C.

## 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

PIG-Q siRNA (h) is recommended for the inhibition of PIG-Q 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PIG-Q gene expression knockdown using RT-PCR Primer: PIG-Q (h)-PR: sc-62806-PR (20  $\mu$ 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](http://www.scbt.com) for detailed protocols and support products.