SANTA CRUZ BIOTECHNOLOGY, INC.

PIG-Q siRNA (m): sc-62807

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 stablize 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., et al. 1998. Human and mouse Gpi1p homologues restore glycosylphosphatidylinositol membrane anchor biosynthesis in yeast mutants. Biochem. J. 334: 609-616.
2. Hong, Y., et al. 1999. GPI1 stabilizes an enzyme essential in the first step of glycosylphosphatidylinositol biosynthesis. J. Biol. Chem. 274: 18582-18588.
3. Watanabe, R., et al. 2000. Initial enzyme for glycosylphosphatidylinositol biosynthesis requires PIG-P and is regulated by DPM2. EMBO J. 19: 4402-4411.
4. Tiede, A., et al. 2000. Characterisation of the enzymatic complex for the first step in glycosylphosphatidylinositol biosynthesis. Int. J. Biochem. Cell Biol. 32: 339-350.
5. Tiede, A., et al. 2001. The human GPI1 gene is required for efficient glycosylphosphatidylinositol biosynthesis. Gene 271: 247-254.
6. Shams-Eldin, H., et al. 2002. The GPI1 homologue from *Plasmodium falciparum* complements a *Saccharomyces cerevisiae* GPI1 anchoring mutant. Mol. Biochem. Parasitol. 120: 73-81.
7. Delorenzi, M., et al. 2002. Genes for glycosylphosphatidylinositol toxin biosynthesis in *Plasmodium falciparum*. Infect. Immun. 70: 4510-4522.
8. Eisenhaber, B., et al. 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 (mouse) mapping to 17 A3.3.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

PIG-Q 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PIG-Q shRNA Plasmid (m): sc-62807-SH and PIG-Q shRNA (m) Lentiviral Particles: sc-62807-V as alternate gene silencing products.

For independent verification of PIG-Q (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-62807A, sc-62807B and sc-62807C.

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

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

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PIG-Q gene expression knockdown using RT-PCR Primer: PIG-Q (m)-PR: sc-62807-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zoufal, V., et al. 2019. Influence of multidrug resistance-associated proteins on the excretion of the ABCC1 imaging probe 6-bromo-7-[^{11}C]methylpurine in mice. Mol. Imaging Biol. 21: 306-316.

RESEARCH USE

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