SANTA CRUZ BIOTECHNOLOGY, INC.

# glycogen synthase 2 siRNA (h): sc-60946

## BACKGROUND

Glycogen [starch] synthase belongs to the mammalian/fungal glycogen synthase family of proteins. Two forms of this protein exist, a liver form and a muscle form, both of which have the same function in the glycogen biosynthesis pathway. Glycogen synthase transfers the glycosyl residue from UDP-Glucose to the nonreducing end of α-1,4-glucan. The liver glycogen synthase protein is truncated by 34 amino acids compared to the muscle form. However, these enzymes differ significantly in their amino- and carboxyl-terminal regions. Muscle glycogen synthase serves to fuel muscular activity only and is regulated by muscle contraction and by catecholamines. Liver glycogen synthase mediates blood glucose homeostasis in response to nutritional cues. Defects in the gene encoding liver glycogen synthase results in glycogen storage disease type 0 (GSD0), a rare form of fasting ketotic hypoglycemia.

## REFERENCES


1. Pitcher, J., et al. 1988. Identification of the 38 kDa subunit of rabbit skeletal muscle glycogen synthase as glycogenin. Eur. J. Biochem. 169: 497-502.
2. Bai, G., et al. 1990. The primary structure of rat liver glycogen synthase deduced by cDNA cloning. Absence of phosphorylation sites 1a and 1b. J. Biol. Chem. 265: 7843-7848.
3. Gerich, J.E. 1993. Control of glycaemia. Baillières Clin. Endocrinol. Metab. 7: 551-586.
4. Nuttall, F.Q., et al. 1994. Primary structure of human liver glycogen synthase deduced by cDNA cloning. Arch. Biochem. Biophys. 311: 443-449.
5. Roach, P.J. 2002. Glycogen and its metabolism. Curr. Mol. Med. 2: 101-120.
6. Ferrer, J.C., et al. 2003. Control of glycogen deposition. FEBS Lett. 546: 127-132.
7. Weinstein, D.A., et al. 2006. Hepatic glycogen synthase deficiency: an infrequently recognized cause of ketotic hypoglycemia. Mol. Genet. Metab. 87: 284-288.


## CHROMOSOMAL LOCATION

Genetic locus: GYS2 (human) mapping to 12p12.1.

## PRODUCT

glycogen synthase 2 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see glycogen synthase 2 shRNA Plasmid (h): sc-60946-SH and glycogen synthase 2 shRNA (h) Lentiviral Particles: sc-60946-V as alternate gene silencing products.

For independent verification of glycogen synthase 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-60946A, sc-60946B and sc-60946C.

## PROTOCOLS

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

glycogen synthase 2 siRNA (h) is recommended for the inhibition of glycogen synthase 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 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

glycogen synthase 2 (G-8): sc-390391 is recommended as a control antibody for monitoring of glycogen synthase 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-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 glycogen synthase 2 gene expression knockdown using RT-PCR Primer: glycogen synthase 2 (h)-PR: sc-60946-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. Chen, S.L., et al. 2019. A GYS2/p53 negative feedback loop restricts tumor growth in HBV-related hepatocellular carcinoma. Cancer Res. 79: 534-545.


## RESEARCH USE

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