

# Glycogenin-2 siRNA (h): sc-91341

## BACKGROUND

Glycogenin-2, also known as GYG2 or GN2, is a 501 amino acid protein that belongs to the glycogenin family and exists as six alternatively spliced isoforms, designated  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\epsilon$  and  $\zeta$ . Preferentially expressed in heart, pancreas and liver, Glycogenin-2 functions as a homodimer that uses divalent metal ions as cofactors to catalyze self-glucosylation, thereby producing an oligosaccharide primer that serves as a substrate for glycogen synthase and is thought to regulate glycogen accumulation within the cell. The gene encoding Glycogenin-2 maps to human chromosome X, which contains nearly 153 million base pairs and houses over 1,000 genes. In conjunction with chromosome Y, chromosome X is responsible for sex determination. There are a number of conditions related to an abnormal number and combination of sex chromosomes, some of which include Turner's syndrome, color blindness, hemophilia and Duchenne muscular dystrophy.

## REFERENCES

1. Bao, Y., et al. 1996. Hepatic and neuromuscular forms of glycogen storage disease type IV caused by mutations in the same glycogen-branching enzyme gene. *J. Clin. Invest.* 97: 941-948.
2. Mu, J., et al. 1997. Glycogenin-2, a novel self-glucosylating protein involved in liver glycogen biosynthesis. *J. Biol. Chem.* 272: 27589-27597.
3. Roach, P.J., et al. 1998. Novel aspects of the regulation of glycogen storage. *J. Basic Clin. Physiol. Pharmacol.* 9: 139-151.
4. Mu, J., et al. 1998. Characterization of human glycogenin-2, a self-glucosylating initiator of liver glycogen metabolism. *J. Biol. Chem.* 273: 34850-34856.
5. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 300198. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Zhai, L., et al. 2000. Structure and chromosomal localization of the human glycogenin-2 gene GYG2. *Gene* 242: 229-235.
7. Zhai, L., et al. 2001. Do rodents have a gene encoding glycogenin-2, the liver isoform of the self-glucosylating initiator of glycogen synthesis? *IUBMB Life* 51: 87-91.

## CHROMOSOMAL LOCATION

Genetic locus: GYG2 (human) mapping to Xp22.33.

## PRODUCT

Glycogenin-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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Glycogenin-2 shRNA Plasmid (h): sc-91341-SH and Glycogenin-2 shRNA (h) Lentiviral Particles: sc-91341-V as alternate gene silencing products.

For independent verification of Glycogenin-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-91341A, sc-91341B and sc-91341C.

## 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

Glycogenin-2 siRNA (h) is recommended for the inhibition of Glycogenin-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

Glycogenin-2 (3L10): sc-134346 is recommended as a control antibody for monitoring of Glycogenin-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™ Molecular Weight Standards: sc-2035, UltraCruz® 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® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Glycogenin-2 gene expression knockdown using RT-PCR Primer: Glycogenin-2 (h)-PR: sc-91341-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.