

# GRHPR siRNA (m): sc-145763

## BACKGROUND

GRHPR (glyoxylate reductase/hydroxypyruvate reductase), also known as GLXR, is a member of the D-isomer specific 2-hydroxyacid dehydrogenase family of proteins. Localizing to the cytosol, GRHPR is ubiquitously expressed with highest expression levels found in liver. Functioning as a homodimer, GRHPR plays a role in metabolism by removing the highly reactive two carbon acid by-product glyoxylate through a reduction reaction which yields glycolate. In addition, GRHPR contains hydroxypyruvate reductase activity and D-glycerate dehydrogenase activity. Mutations in the gene encoding GRHPR that impair its ability to reduce glyoxylate can result in primary hyperoxaluria type II (PH2 or HP2), a disease characterized by the formation of kidney stones, increased urinary excretion of L-glycerate and oxalate and renal failure.

## REFERENCES

1. Cramer, S.D., et al. 1999. The gene encoding hydroxypyruvate reductase (GRHPR) is mutated in patients with primary hyperoxaluria type II. *Hum. Mol. Genet.* 8: 2063-2069.
2. Rumsby, G., et al. 1999. Identification and expression of a cDNA for human hydroxypyruvate/glyoxylate reductase. *Biochim. Biophys. Acta* 1446: 383-388.
3. Webster, K.E., et al. 2000. Identification of missense, nonsense, and deletion mutations in the GRHPR gene in patients with primary hyperoxaluria type II (PH2). *Hum. Genet.* 107: 176-185.
4. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604296. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Mdululi, K., et al. 2005. A preliminary account of the properties of recombinant human Glyoxylate reductase (GRHPR), LDHA and LDHB with glyoxylate, and their potential roles in its metabolism. *Biochim. Biophys. Acta* 1753: 209-216.
6. Genolet, R., et al. 2005. Promoter rearrangements cause species-specific hepatic regulation of the glyoxylate reductase/hydroxypyruvate reductase gene by the peroxisome proliferator-activated receptor  $\alpha$ . *J. Biol. Chem.* 280: 24143-24152.

## CHROMOSOMAL LOCATION

Genetic locus: Grhpr (mouse) mapping to 4 B1.

## PRODUCT

GRHPR siRNA (m) is a pool of 2 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 GRHPR shRNA Plasmid (m): sc-145763-SH and GRHPR shRNA (m) Lentiviral Particles: sc-145763-V as alternate gene silencing products.

For independent verification of GRHPR (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-145763A and sc-145763B.

## 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

GRHPR siRNA (m) is recommended for the inhibition of GRHPR 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  $\mu$ 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

GRHPR (D-2): sc-271494 is recommended as a control antibody for monitoring of GRHPR 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 GRHPR gene expression knockdown using RT-PCR Primer: GRHPR (m)-PR: sc-145763-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.