SANTA CRUZ BIOTECHNOLOGY, INC.

# Gls siRNA (r): sc-270166

## BACKGROUND

Glutamine is an important molecule involved in several cellular functions, including nitrogen and carbon transport, hepatic urea synthesis, renal ammoniagenesis, and gluconeogenesis. Gls (glutaminase), also known as Glut, is the enzyme that catalyzes the conversion of glutamine to glutamic acid, which then enters the TCA (trichloro acetic acid) cycle as α-KG (α-ketoglutarate). In humans, glutamine is catabolized by either the liver-type (LGA) or kidney-type (KGA) glutaminase. KGA is mitochondrial specific protein whose expression in kidney is increased during metabolic acidosis. This process is mediated by an 8-base AU-sequence in KGA that functions as a pH-response element. The human KGA gene maps to chromosome 2, and produces three isoforms, designated KGA, GAC, and GAM, by alternative splicing. Rat Gls is encoded by a gene that maps to chromosome 9.

## REFERENCES


1. Curthoys, N.P. and Watford, M. 1995. Regulation of glutaminase activity and glutamine metabolism. Annu. Rev. Nutr. 15: 133-159.
2. Chatot, C.L., et al. 1997. Analysis of glutaminase activity and RNA expression in preimplantation mouse embryos. Mol. Reprod. Dev. 47: 248-254.
3. Leonhardt, S., et al. 1999. Reduction of luteinzing hormone secretion induced by long-term feed restriction in male rats is associated with increased expression of GABA-synthesizing enzymes without alterations of GnRH gene expression. J. Neuroendocrinol. 11: 613-619.
4. Elgadi, K.M., et al. 1999. Cloning and analysis of unique human glutaminase isoforms generated by tissue-specific alternative splicing. Physiol. Genomics 1: 51-62.
5. Aledo, J.C., et al. 2000. Identification of two human glutaminase loci and tissue-specific expression of the two related genes. Mamm. Genome 11: 1107-1110.
6. Porter, L.D., et al. 2002. Complexity and species variation of the kidney-type glutaminase gene. Physiol. Genomics 9: 157-166.
7. Holten, A.T. and Gundersen, V. 2008. Glutamine as a precursor for transmitter glutamate, aspartate and GABA in the cerebellum: a role for phosphate-activated glutaminase. J. Neurochem. 104: 1032-1042.


## CHROMOSOMAL LOCATION

Genetic locus: Gls (rat) mapping to 9q22.

## PRODUCT

Gls siRNA (r) 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 Gls shRNA Plasmid (r): sc-270166-SH and Gls shRNA (r) Lentiviral Particles: sc-270166-V as alternate gene silencing products.

For independent verification of Gls (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270166A, sc-270166B and sc-270166C.

## 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

Gls siRNA (r) is recommended for the inhibition of Gls expression in rat 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 Gls gene expression knockdown using RT-PCR Primer: Gls (r)-PR: sc-270166-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. Liu, F., et al. 2017. MicroRNA-200c exacerbates the ischemia/reperfusion injury of heart through targeting the glutaminase (GLS)-mediated glutamine metabolism. Eur. Rev. Med. Pharmacol. Sci. 21: 3282-3289.


## RESEARCH USE

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

## PROTOCOLS

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