

GNL1 siRNA (h): sc-62389

BACKGROUND

GNL1 (guanine nucleotide-binding protein-like 1) is a nuclear protein that likely acts as a regulator of the histocompatibility cluster. GNL1 and MMR1, the murine homolog, are localized within or close to the MHC class I region and belong to the MMR1/HSR1 GTP-binding protein family. GTPases, such as GNL1, from the MMR1/HSR1 GTP-binding protein subfamily are circularly rearranged G-motifs that play a critical role in maintaining normal cell growth. Deletion of these genes results in severe growth defects with a marked reduction in mature rRNA species and a concomitant accumulation of the 35S pre-rRNA transcript. Deletion also causes the ribosomal protein Rpl25a to fail exportation from the nucleolus. Deletion of any of the G-domain motifs will result in a null phenotype and nuclear/nucleolar localization that lacks the nucleolar export of preribosomes and is accompanied by a distortion of the nucleolar structure. Upon DNA damage GNL1 is phosphorylated by a kinase, possibly Atm or ATR.

REFERENCES

1. Sulakhe, P.V., et al. 1990. MgCl₂-sensitive and Gpp(NH)p-sensitive antagonist binding states of rat heart muscarinic receptors: preferential detection at ambient temperature assay and location in two subcellular fractions. *Mol. Cell. Biochem.* 94: 133-146.
2. Vernet, C., et al. 1994. Structure and evolution of a member of a new subfamily of GTP-binding proteins mapping to the human MHC class I region. *Mamm. Genome* 5: 100-105.
3. Vernet, C., et al. 1994. Evolutionary study of multigenic families mapping close to the human MHC class I region. *J. Mol. Evol.* 37: 600-612.
4. Du, X., et al. 2006. The homologous putative GTPases Grn1p from fission yeast and the human GNL3L are required for growth and play a role in processing of nucleolar pre-rRNA. *Mol. Biol. Cell* 17: 460-474.
5. Rao, M.R., et al. 2006. A novel lysine-rich domain and GTP binding motifs regulate the nucleolar retention of human guanine nucleotide binding protein, GNL3L. *J. Mol. Biol.* 364: 637-654.
6. Tada, M., et al. 2007. Recent progress in the research on small GTP-binding proteins. *Nippon Yakurigaku Zasshi* 130: 373-379.

CHROMOSOMAL LOCATION

Genetic locus: GNL1 (human) mapping to 6p21.33.

PRODUCT

GNL1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GNL1 shRNA Plasmid (h): sc-62389-SH and GNL1 shRNA (h) Lentiviral Particles: sc-62389-V as alternate gene silencing products.

For independent verification of GNL1 (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-62389A, sc-62389B and sc-62389C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

GNL1 siRNA (h) is recommended for the inhibition of GNL1 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 μ M in 66 μ 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

GNL1 (H-9): sc-514362 is recommended as a control antibody for monitoring of GNL1 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 GNL1 gene expression knockdown using RT-PCR Primer: GNL1 (h)-PR: sc-62389-PR (20 μ 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 for detailed protocols and support products.