SANTA CRUZ BIOTECHNOLOGY, INC.

GMPS siRNA (m): sc-145652

BACKGROUND

Purines are critical for energy metabolism, cell signaling and cell reproduction and also function as precursors for >coenzymes, energy transfer molecules, regulatory factors and proteins involved in RNA and DNA synthesis. GMPS (guanine monphosphate synthetase), also known as GMP synthetase, is a 693 amino acid cytoplasmic protein that is involved in purine biosynthesis. Existing as a homodimer, GMPS catalyzes the last step in the GMP synthesis pathway, namely the ATP-dependent amination of XMP to GMP. GMPS contains one GMP-binding domain and one glutamine amidotransferase type-1 domain through which it conveys its catalytic activity. Chromosomal translocations involving the gene encoding GMPS are associated with acute myeloid leukemias, suggesting a possible role for GMPS in carcinogenesis.

REFERENCES

1. Page, T., et al. 1984. Human GMP synthetase. Int. J. Biochem. 16: 117-120.
2. Hirst, M., et al. 1994. Human GMP synthetase. Protein purification, cloning, and functional expression of cDNA. J. Biol. Chem. 269: 23830-23837.
3. Nakamura, J., et al. 1995. Biochemical characterization of human GMP synthetase. J. Biol. Chem. 270: 7347-7353.
4. Nakamura, J., et al. 1995. The glutamine hydrolysis function of human GMP synthetase. Identification of an essential active site cysteine. J. Biol. Chem. 270: 23450-23455.
5. Fedorova, L., et al. 1997. Assignment and ordering of twenty-three unique NotI-linking clones containing expressed genes including the guanosine 5'-monophosphate synthetase gene to human chromosome 3. Eur. J. Hum. Genet. 5: 110-116.
6. Pegram, L.D., et al. 2000. t(3;11) translocation in treatment-related acute myeloid leukemia fuses MLL with the GMPS (guanosine 5' monophosphate synthetase) gene. Blood 96: 4360-4362.
7. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 600358. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: Gmps (mouse) mapping to 3 E1.

PRODUCT

GMPS siRNA (m) is a target-specific 19-25 nt siRNA 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 GMPS shRNA Plasmid (m): sc-145652-SH and GMPS shRNA (m) Lentiviral Particles: sc-145652-V as alternate gene silencing products.

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

GMPS siRNA (m) is recommended for the inhibition of GMPS 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 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

GMPS (C-5): sc-376163 is recommended as a control antibody for monitoring of GMPS 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 GMPS gene expression knockdown using RT-PCR Primer: GMPS (m)-PR: sc-145652-PR (20 µl). 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.