SANTA CRUZ BIOTECHNOLOGY, INC.

GMPPA siRNA (m): sc-145648

BACKGROUND

GMPPA (GDP-mannose pyrophosphorylase A), also known as Mannose-1-phosphate guanyltransferase alpha, is a 420 amino acid protein that belongs to the transferase hexapeptide repeat family and is involved in protein modification pathways. Functioning as a GDP-mannose pyrophosphorylase, GMPPA enzymatically catalyzes the conversion of α-D-mannose 1-phosphate and GTP to GDP-mannose and a diphosphate, a reaction that is involved in the biosynthesis of nucleotide-sugar. The gene encoding GMPPA is located on human chromosome two, which houses over 1,400 genes and comprises nearly 8% of the human genome. GMPPA is expressed as two isoforms due to alternative splicing events.

REFERENCES

1. Ning, B. and Elbein, A.D. 2000. Cloning, expression and characterization of the pig liver GDP-mannose pyrophosphorylase. Evidence that GDP-mannose and GDP-Glc pyrophosphorylases are different proteins. Eur. J. Biochem. 267: 6866-6874.
2. Nagase, T., et al. 2001. Prediction of the coding sequences of unidentified human genes. XX. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 8: 85-95.
3. Sacchetti, S., et al. 2004. Identification of a GDP-mannose pyrophosphorylase gene from *Sulfolobus solfataricus*. Gene 332: 149-157.
4. Ota, T., et al. 2004. Complete sequencing and characterization of 21,243 full-length human cDNAs. Nat. Genet. 36: 40-45.
5. Hillier, L.W., et al. 2005. Generation and annotation of the DNA sequences of human chromosomes 2 and 4. Nature 434: 724-731.
6. Jiang, H., et al. 2008. GDP-mannose pyrophosphorylase is essential for cell wall integrity, morphogenesis and viability of *Aspergillus fumigatus*. Microbiology 154: 2730-2739.
7. Asención Diez, M.D., et al. 2009. Functional characterization of GDP-mannose pyrophosphorylase from Leptospira interrogans serovar Copenhageni. Arch. Microbiol. 192: 103-114.

CHROMOSOMAL LOCATION

Genetic locus: Gmppa (mouse) mapping to 1 C4.

PRODUCT

GMPPA 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 GMPPA shRNA Plasmid (m): sc-145648-SH and GMPPA shRNA (m) Lentiviral Particles: sc-145648-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

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

GMPPA (Y-2D78): sc-134348 is recommended as a control antibody for monitoring of GMPPA 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 GMPPA gene expression knockdown using RT-PCR Primer: GMPPA (m)-PR: sc-145648-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.