

# GMPS (D-5): sc-374225

## 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 monophosphate 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 23 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 (human) mapping to 3q25.31; Gmps (mouse) mapping to 3 E1.

## SOURCE

GMPS (D-5) is a mouse monoclonal antibody raised against a peptide mapping at the C-terminus of GMPS of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

GMPS (D-5) is recommended for detection of GMPS of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for GMPS siRNA (h): sc-78183, GMPS siRNA (m): sc-145652, GMPS shRNA Plasmid (h): sc-78183-SH, GMPS shRNA Plasmid (m): sc-145652-SH, GMPS shRNA (h) Lentiviral Particles: sc-78183-V and GMPS shRNA (m) Lentiviral Particles: sc-145652-V.

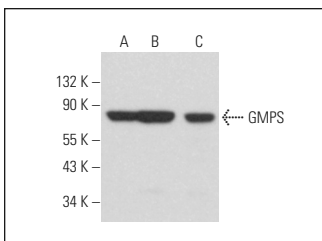
Molecular Weight of GMPS: 75 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, HL-60 whole cell lysate: sc-2209 or MCF7 whole cell lysate: sc-2206.

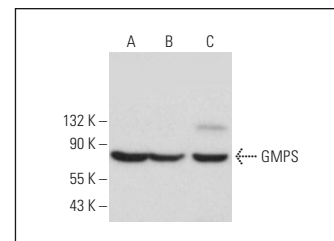
## RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

## DATA



GMPS (D-5): sc-374225. Western blot analysis of GMPS expression in MCF7 (A), Jurkat (B) and HL-60 (C) whole cell lysates.



GMPS (D-5): sc-374225. Western blot analysis of GMPS expression in HL-60 (A), MDA-MB-231 (B) and SK-BR-3 (C) whole cell lysates.

## 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.