

GMPS (C-5): sc-376163



The Power to Question

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.

CHROMOSOMAL LOCATION

Genetic locus: GMPS (human) mapping to 3q25.31; Gmps (mouse) mapping to 3 E1.

SOURCE

GMPS (C-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_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GMPS (C-5) is available conjugated to agarose (sc-376163 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376163 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376163 PE), fluorescein (sc-376163 FITC), Alexa Fluor® 488 (sc-376163 AF488), Alexa Fluor® 546 (sc-376163 AF546), Alexa Fluor® 594 (sc-376163 AF594) or Alexa Fluor® 647 (sc-376163 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376163 AF680) or Alexa Fluor® 790 (sc-376163 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

GMPS (C-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).

GMPS (C-5) is also recommended for detection of GMPS in additional species, including equine and porcine.

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.

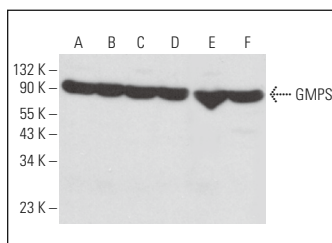
Molecular Weight of GMPS: 75 kDa.

Positive Controls: 3T3-L1 cell lysate: sc-2243, NIH/3T3 whole cell lysate: sc-2210 or PC-3 cell lysate: sc-2220.

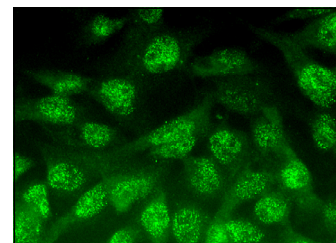
RECOMMENDED SUPPORT REAGENTS

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 (C-5): sc-376163. Western blot analysis of GMPS expression in NIH/3T3 (A), 3T3-L1 (B), PC-3 (C), DU 145 (D), SK-BR-3 (E) and PC-12 (F) whole cell lysates.



GMPS (C-5): sc-376163. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic and nuclear localization.

SELECT PRODUCT CITATIONS

- Holzer, K., et al. 2017. Proteomic analysis reveals GMP synthetase as p53 repression target in liver cancer. *Am. J. Pathol.* 187: 228-235.
- Zurlo, G., et al. 2019. Prolyl hydroxylase substrate adenylosuccinate lyase is an oncogenic driver in triple negative breast cancer. *Nat. Commun.* 10: 5177.
- Kollareddy, M., et al. 2021. Distinct classes of flavonoids and epigallocatechin gallate, polyphenol affects an oncogenic mutant p53 protein, cell growth and invasion in a TNBC breast cancer cell line. *Cells* 10: 797.
- Zhang, P., et al. 2022. Dietary intake of fructose increases purine *de novo* synthesis: a crucial mechanism for hyperuricemia. *Front. Nutr.* 9: 1045805.

STORAGE

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

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.

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