SANTA CRUZ BIOTECHNOLOGY, INC.

GART (F-8): sc-166447

SANTA CRUZ BIOTECHNOLOGY

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. GART (GAR transformylase), also referred to as AIRS, GARS, PAIS, PGFT, PRGS or GARTF, is 1,010 amino acids in length and is a key folate-dependent trifunctional enzyme with phosphoribosylglycinamide formyltransferase, phosphoribosylglycinamide synthetase and AICAR (phosphoribosylaminoimidazole synthetase) activity required for *de novo* purine biosynthesis. Cancer cells require considerable amounts of purines to sustain their accelerated growth and GART is, therefore, a target for cancer chemotherapy. GART is highly conserved in vertebrates. Two isoforms of GART are expressed due to alternative splicing events.

REFERENCES

1. Smith, G.K., et al. 1982. Direct transfer of one-carbon units in the transformylations of *de novo* purine biosynthesis. Biochemistry 21: 2870-2874.
2. Deacon, R., et al. 1985. Role of folate dependent transformylases in synthesis of purine in bone marrow of man and in bone marrow and liver of rats. J. Clin. Pathol. 38: 1349-1352.

CHROMOSOMAL LOCATION

Genetic locus: GART (human) mapping to 21q22.11; Gart (mouse) mapping to 16 C3.3.

SOURCE

GART (F-8) is a mouse monoclonal antibody raised against amino acids 61-360 mapping near the N-terminus of GART of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

GART (F-8) is recommended for detection of GART 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 GART siRNA (h): sc-91395, GART siRNA (m): sc-145331, GART shRNA Plasmid (h): sc-91395-SH, GART shRNA Plasmid (m): sc-145331-SH, GART shRNA (h) Lentiviral Particles: sc-91395-V and GART shRNA (m) Lentiviral Particles: sc-145331-V.

Molecular Weight of GART long isoform: 110 kDa.

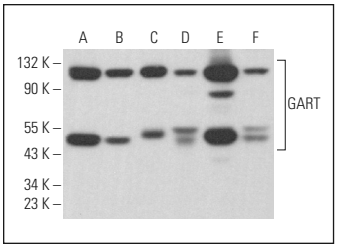
Molecular Weight of GART short isoform: 46 kDa.

Positive Controls: HEL 92.1.7 cell lysate: sc-2270, THP-1 cell lysate: sc-2238 or 3T3-L1 cell lysate: sc-2243.

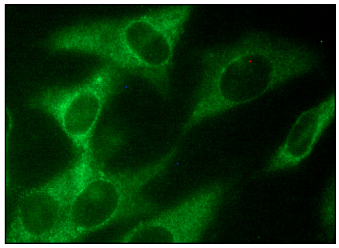
RECOMMENDED SUPPORT REAGENTS

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



GART (F-8): sc-166447. Western blot analysis of GART expression in HEL 92.1.7 (**A**), THP-1 (**B**), 3T3-L1 (**C**), L6 (**D**), WEHI-231 (**E**) and Sol8 (**F**) whole cell lysates.



GART (F-8): sc-166447. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Cong, X., et al. 2014. Increased expression of glycinamide ribonucleotide transformylase is associated with a poor prognosis in hepatocellular carcinoma, and it promotes liver cancer cell proliferation. Hum. Pathol. 45: 1370-1378.
2. Zhang, W.C., et al. 2022. MicroRNA-21 guide and passenger strand regulation of adenylosuccinate lyase-mediated purine metabolism promotes transition to an EGFR-TKI-tolerant persister state. Cancer Gene Ther. E-published.

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.