

GART (3F6): sc-100582



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 1010 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. GART is encoded by the GARS-AIRS-GART gene and is highly conserved in vertebrates. Cancer cells require considerable amounts of purines to sustain their accelerated growth and GART is, therefore, a target for cancer chemotherapy. 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 trans-formylations 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.
3. Daubner, S.C., et al. 1986. Structural and mechanistic studies on the HeLa and chicken liver proteins that catalyze glycinamide ribonucleotide synthesis and formylation and aminoimidazole ribonucleotide synthesis. *Biochemistry* 25: 2951-2957.
4. Brodsky, G., et al. 1997. The human GARS-AIRS-GART gene encodes two proteins which are differentially expressed during human brain development and temporally overexpressed in cerebellum of individuals with Down syndrome. *Hum. Mol. Genet.* 6: 2043-2050.
5. Nixon, A.E., et al. 1997. Assembly of an active enzyme by the linkage of two protein modules. *Proc. Natl. Acad. Sci. USA* 94: 1069-1073.

CHROMOSOMAL LOCATION

Genetic locus: GART (human) mapping to 21q22.11.

SOURCE

GART (3F6) is a mouse monoclonal antibody raised against recombinant GART of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ 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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

GART (3F6) is recommended for detection of GART of human origin by Western Blotting (starting dilution 1:200, 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), immunohistochemistry (including paraffin-embedded sections) (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 shRNA Plasmid (h): sc-91395-SH and GART shRNA (h) Lentiviral Particles: sc-91395-V.

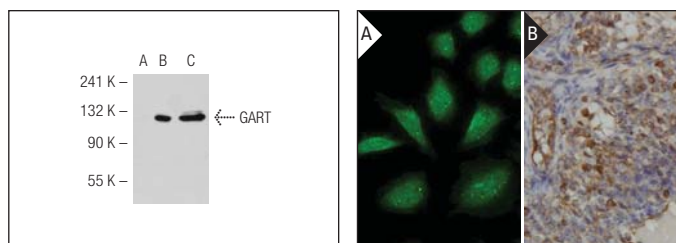
Molecular Weight of GART: 110 kDa.

Positive Controls: GART (h): 293T Lysate: sc-115506, K-562 whole cell lysate: sc-2203 or HeLa whole cell lysate: sc-2200.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2050 or ABC: sc-2017 mouse IgG Staining Systems.

DATA



GART (3F6): sc-100582. Western blot analysis of GART expression in non-transfected 293T: sc-117752 (A), human GART transfected 293T: sc-115506 (B) and HeLa (C) whole cell lysates.

GART (3F6): sc-100582. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells (A) and immunoperoxidase staining of formalin-fixed, paraffin-embedded human endometrium tissue (B) showing nuclear and cytoplasmic localization.

RESEARCH USE

For research use only, not for use in diagnostic procedures.