

# GART (S-20): sc-83255

## 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. 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; Gart (mouse) mapping to 16 C3.3.

## SOURCE

GART (S-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of GART of human origin.

## PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-83255 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

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

## APPLICATIONS

GART (S-20) is recommended for detection of GART of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

GART (S-20) is also recommended for detection of GART in additional species, including equine, canine, bovine and porcine.

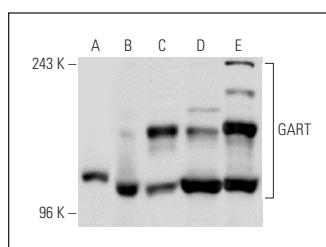
Suitable for use as control antibody for GART siRNA (h): sc-91395, GART siRNA (m): sc-145331, GART shRNA Plasmid (h): sc-91395-SH, GART shRNA Plasmid (m): sc-145331-SH, GART shRNA (h) Lentiviral Particles: sc-91395-V and GART shRNA (m) Lentiviral Particles: sc-145331-V.

Molecular Weight of GART long isoform: 110 kDa.

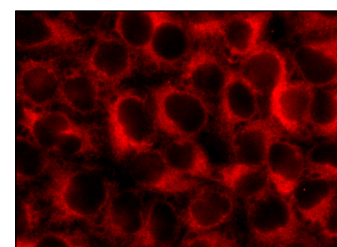
Molecular Weight of GART short isoform: 46 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, K-562 whole cell lysate: sc-2203 or A-431 whole cell lysate: sc-2201.

## DATA



GART (S-20): sc-83255. Western blot analysis of GART expression in 293T (A), A-431 (B), Daudi (C) and K-562 (D) whole cell lysates and HeLa nuclear extract (E).



GART (S-20): sc-83255. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

## 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) or our catalog for detailed protocols and support products.

**MONOS**  
Satisfaction  
Guaranteed

Try **GART (D-4): sc-166379** or **GART (F-8): sc-166447**, our highly recommended monoclonal alternatives to GART (S-20).