

# GART (D-4): sc-166379

## 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

GART (D-4) 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<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GART (D-4) is available conjugated to agarose (sc-166379 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166379 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166379 PE), fluorescein (sc-166379 FITC), Alexa Fluor® 488 (sc-166379 AF488), Alexa Fluor® 546 (sc-166379 AF546), Alexa Fluor® 594 (sc-166379 AF594) or Alexa Fluor® 647 (sc-166379 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166379 AF680) or Alexa Fluor® 790 (sc-166379 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

GART (D-4) 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), 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 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.

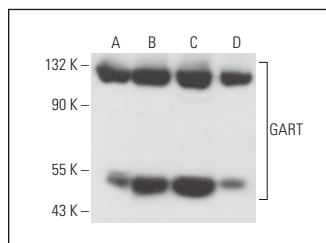
Molecular Weight of GART short isoform: 46 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, Daudi cell lysate: sc-2415 or K-562 whole cell lysate: sc-2203.

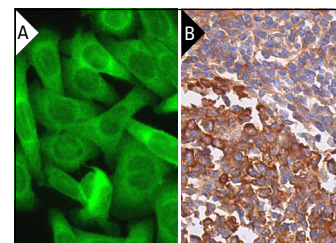
## RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



GART (D-4): sc-166379. Western blot analysis of GART expression in HeLa nuclear extract (A) and K-562 (B), Daudi (C) and NIH/3T3 (D) whole cell lysates.



GART (D-4): sc-166379. Immunofluorescence staining of formalin-fixed SW480 cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing cytoplasmic staining of cells in germinal center and cells in non-germinal center (B).

## SELECT PRODUCT CITATIONS

1. Lv, Y., et al. 2020. Nucleotide *de novo* synthesis increases breast cancer stemness and metastasis via cGMP-PKG-MAPK signaling pathway. *PLoS Biol.* 18: e3000872.
2. Kawamura, T., et al. 2022. VGLL3 increases the dependency of cancer cells on *de novo* nucleotide synthesis through GART expression. *J. Cell. Biochem.* 123: 1064-1076.

## 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](http://www.scbt.com) for detailed protocols and support products.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA