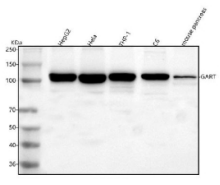
GART Antibody / Phosphoribosylglycinamide formyltransferase (FY12118)

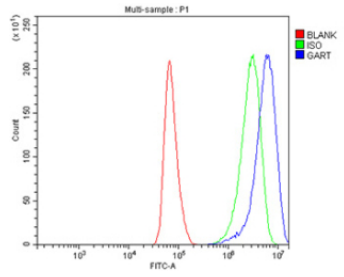
Catalog No.	Formulation	Size
FY12118	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

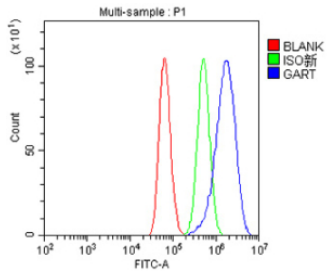
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P22102
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This GART antibody is available for research use only.



Western blot analysis of GART using anti-GART antibody. Lane 1: human HepG2 whole cell lysates, Lane 2: human Hela whole cell lysates, Lane 3: human THP-1 whole cell lysates, Lane 4: rat C6 whole cell lysates, Lane 5: mouse pancreas tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-GART antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. A specific band was detected for GART at approximately 108 kDa. The expected band size for GART is at 108 kDa.



Flow Cytometry analysis of HELA cells using anti-GART antibody. Overlay histogram showing HELA cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-GART antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample (Red line) was also used as a control.



Flow Cytometry analysis of HepG2 cells using anti-GART antibody. Overlay histogram showing HepG2 cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-GART antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

Description

GART antibody detects Phosphoribosylglycinamide formyltransferase, also known as trifunctional purine biosynthetic protein adenosine-3, encoded by the GART gene on chromosome 21q22.11. GART is a multifunctional enzyme of the de novo purine biosynthesis pathway, responsible for catalyzing three distinct steps in the conversion of phosphoribosylamine to inosine monophosphate (IMP). This trifunctional protein includes glycinamide ribonucleotide transformylase, aminoimidazole ribonucleotide synthase, and glycinamide ribonucleotide synthetase domains. By integrating multiple catalytic activities into a single polypeptide, GART coordinates metabolic flux through the purine biosynthetic pathway, ensuring efficient nucleotide production required for DNA, RNA, and energy metabolism.

Functionally, GART is critical for rapidly dividing cells that require high nucleotide synthesis rates. The enzyme is localized in the cytoplasm and often organizes into dynamic purinosome complexes when purine demand is elevated. GART activity is tightly regulated, and its expression increases in proliferating cells, including embryonic tissues and tumors. Dysregulation of GART has been associated with cancer metabolism, where enhanced nucleotide biosynthesis supports uncontrolled proliferation. Additionally, its genomic location on chromosome 21 links GART to Down syndrome pathophysiology, since increased gene dosage contributes to altered purine metabolism in trisomy 21.

Biochemically, GART catalyzes the formylation of glycinamide ribonucleotide using 10-formyltetrahydrofolate, forming formylglycinamide ribonucleotide, a crucial intermediate in IMP synthesis. Mutations or inhibition of GART disrupt purine biosynthesis, leading to impaired cell growth and potential embryonic lethality. Small molecule inhibitors of GART and other purinosome enzymes are being explored as antiproliferative agents in oncology.

Experimentally, GART antibody is used to track enzyme expression in normal and cancerous tissues, evaluate purinosome assembly, and study folate-dependent metabolism. Applications include western blotting, immunofluorescence microscopy, and immunohistochemistry. In cancer research, GART antibody helps evaluate metabolic reprogramming, while in developmental biology it provides insights into nucleotide demand during embryogenesis. NSJ Bioreagents supplies GART antibody to support these diverse research fields, ensuring reliable detection of this multifunctional enzyme.

Application Notes

Optimal dilution of the GART antibody should be determined by the researcher.

Immunogen

E.coli-derived human GART recombinant protein (Position: E68-E1010) was used as the immunogen for the GART

antibody.

Storage

After reconstitution, the GART antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.