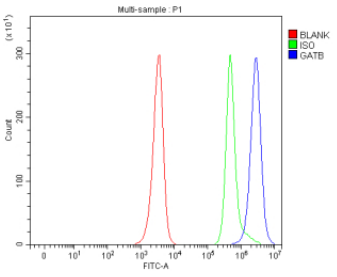
GATB Antibody / Glutamyl-tRNA amidotransferase subunit B (FY12893)

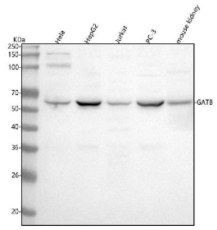
Catalog No.	Formulation	Size
FY12893	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse
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	O75879
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This GATB antibody is available for research use only.



Flow Cytometry analysis of human JK cells using anti-GATB antibody. Overlay histogram showing JK 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-GATB 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.



Western blot analysis of PET112/GATB using anti-GATB antibody. Lane 1: human Hela whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human Jurkat whole cell lysates, Lane 4: human PC-3 whole cell lysates, Lane 5: mouse kidney 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-GATB 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 PET112/GATB at approximately 62 kDa. The expected molecular weight of PET112/GATB is at 62 kDa.

Description

GATB antibody detects Glutamyl-tRNA amidotransferase subunit B, a mitochondrial enzyme subunit essential for tRNA-dependent amino acid amidation. Encoded by the GATB gene on chromosome 4q31.3, this protein forms part of the heterotrimeric GatCAB complex, which converts misacylated Glu-tRNA(Gln) and Asp-tRNA(Asn) into correctly charged Gln-tRNA(Gln) and Asn-tRNA(Asn), respectively. This transamidation reaction ensures translational accuracy and maintains proper protein synthesis in mitochondria and prokaryote-like systems.

Structurally, GATB is a 471-amino-acid mitochondrial protein of approximately 52 kilodaltons that contains an amidase domain and ATP-binding sites required for the transamidation process. It associates with the catalytic subunit GATC and the tRNA recognition subunit GATA to form the functional GatCAB complex. Within mitochondria, GATB localizes to the matrix, where it couples amino acid activation with tRNA modification to sustain accurate translation of mitochondrial-encoded proteins.

The GATB antibody is widely used in mitochondrial biology, enzymology, and translation research to study aminoacyl-tRNA synthesis, protein biosynthesis fidelity, and mitochondrial genome maintenance. Western blot analysis detects a 52 kilodalton band corresponding to GATB, while immunofluorescence shows punctate mitochondrial staining that colocalizes with mitochondrial matrix markers such as HSP60. This antibody provides a dependable reagent for monitoring translational control and enzyme complex integrity in mitochondria.

Functionally, GATB ensures translational fidelity by catalyzing the amination of misacylated tRNAs, preventing incorporation of incorrect amino acids during protein synthesis. Loss or mutation of GATB disrupts mitochondrial translation and compromises respiratory chain assembly, leading to mitochondrial dysfunction, energy deficiency, and developmental disorders. Altered expression of GATB has been linked to neurodegenerative conditions and metabolic syndromes associated with impaired mitochondrial translation. The GATB antibody enables mechanistic studies of mitochondrial gene expression, enzyme complex assembly, and translational regulation under physiological and stress conditions. NSJ Bioreagents validates this antibody for its applications, ensuring reliable detection in mitochondrial and metabolic research applications.

Application Notes

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

Immunogen

E.coli-derived human GATB recombinant protein (Position: R113-E443) was used as the immunogen for the GATB antibody.

Storage

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