

# 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
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.

## **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 western blotting, immunohistochemistry, and immunofluorescence, 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.