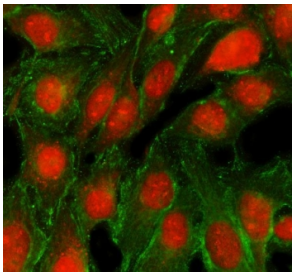
TRMT5 Antibody / tRNA methyltransferase 5 (RQ7568)

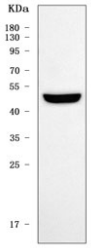
Catalog No.	Formulation	Size
RQ7568	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q32P41
Localization	Nuclear, cytoplasmic
Applications	Western blot: 0.5-1ug/ml Immunofluorescence: 5ug/ml Direct ELISA: 0.1-0.5ug/ml
Limitations	This TRMT5 antibody is available for research use only.



Immunofluorescence analysis of TRMT5 expression. TRMT5 antibody (red) and Alpha Tubulin antibody (green) staining was performed on immunocytochemical sections of human U2OS cells, with nuclear counterstaining using DAPI (blue). TRMT5 signal is observed in both nuclear and cytoplasmic compartments, consistent with reported TRMT5 localization, while Alpha Tubulin highlights the microtubule network. Cells were blocked with goat serum and incubated with rabbit anti-TRMT5 antibody and mouse anti-Alpha Tubulin antibody overnight at 4 degrees C, followed by Cy3-conjugated goat anti-rabbit IgG and DyLight 488-conjugated goat anti-mouse IgG secondary antibodies, and images were acquired using a fluorescence microscope with appropriate filter sets.



Western blot testing of human MCF7 cell lysate with TRMT5 antibody. Predicted molecular weight ~58 kDa, commonly observed at 50-60 kDa.

Description

TRMT5 antibody targets tRNA methyltransferase 5, a conserved RNA modifying enzyme encoded by the TRMT5 gene that catalyzes methylation of guanosine residues in transfer RNA. TRMT5 is predominantly localized to the cytoplasm and mitochondria, where it participates in post-transcriptional modification of tRNA molecules essential for accurate and efficient protein synthesis. tRNA methyltransferase 5 is expressed across a wide range of tissues, reflecting its fundamental role in cellular translation and metabolic homeostasis.

Functionally, tRNA methyltransferase 5 catalyzes formation of N1-methylguanosine at position 37 of specific tRNAs, a modification that stabilizes codon-anticodon interactions during translation. A short functional summary is that TRMT5 supports translational fidelity and reading frame maintenance by modifying tRNA structures critical for ribosomal decoding. Loss or reduction of this modification can lead to translational errors and cellular stress responses.

At the molecular level, TRMT5 belongs to the class I S-adenosylmethionine dependent methyltransferase family and contains conserved catalytic motifs required for methyl group transfer. The enzyme interacts directly with mature tRNA substrates, recognizing specific sequence and structural features. TRMT5 antibody reagents are valuable tools for studying RNA modification pathways, enzyme localization, and regulation of tRNA metabolism under normal and stress conditions.

From a biological and disease relevance perspective, altered TRMT5 activity has been linked to mitochondrial dysfunction, metabolic stress, and defects in protein synthesis. Dysregulation of tRNA modification enzymes such as tRNA methyltransferase 5 has been implicated in neurodevelopmental disorders, cancer, and disorders associated with impaired mitochondrial translation. TRMT5 expression and function are therefore of interest in studies of RNA biology, mitochondrial regulation, and translational control.

Developmentally, TRMT5 expression is required to support cellular growth and viability, particularly in energy demanding tissues. TRMT5 antibody tools support research applications aimed at characterizing RNA modification enzymes, investigating tRNA dependent regulatory mechanisms, and exploring links between translation fidelity and disease. TRMT5 antibodies from NSJ Bioreagents are supplied for research use to support studies in RNA biology and cellular metabolism.

Application Notes

Optimal dilution of the TRMT5 antibody should be determined by the researcher.

Immunogen

E. coli-derived recombinant human protein (amino acids R291-E501) was used as the immunogen for the TRMT5 antibody.

Storage

After reconstitution, the TRMT5 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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