

DTD1 Antibody / D-aminoacyl-tRNA deacylase 1 Antibody (FY13598)

Catalog No.	Formulation	Size
FY13598	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

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Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na ₂ HPO ₄ .
UniProt	Q8TEA8
Applications	Western Blot : 0.5-1ug/ml Immunofluorescence : 5ug/ml ELISA : 0.1-0.5 ug/ml
Limitations	Intended solely for research purposes, this DTD1 Antibody / D-aminoacyl-tRNA deacylase 1 Antibody is not for clinical use.

DTD1 Antibody by IF in A549 cells. Immunofluorescence staining using D-aminoacyl-tRNA deacylase 1 Antibody shows green cytoplasmic and perinuclear staining, with green fluorescence also overlapping portions of the nuclear area. Nuclei are counterstained blue with DAPI. Cells underwent enzyme-mediated antigen retrieval for 15 minutes and blocking with 10% goat serum. Primary antibody was applied at 5 ug/mL overnight at 4oC, followed by a Fluoro488-conjugated secondary antibody at 1:500 for 30 minutes at 37oC. The observed staining distribution is described without assuming organelle-specific colocalization.

DTD1 Antibody by WB in human and rodent samples. Western blot analysis using D-aminoacyl-tRNA deacylase 1 Antibody detects a prominent immunoreactive band near 24 kDa in human MCF-7 (lane 1), A549 (lane 2), rat brain (lane 3), and mouse brain (lane 4). The calculated molecular weight is approximately 23 kDa. Reduced samples containing 30 ug protein per lane were separated by 12% SDS-PAGE and transferred to nitrocellulose. After blocking with 5% nonfat milk, the membrane was incubated with primary antibody at 0.5 ug/mL overnight at 4oC. Detection used an HRP-conjugated secondary antibody at 1:5000 and a chemiluminescent substrate. The band positions are described relative to the molecular weight standards in the blot.

Description

DTD1 Antibody / D-aminoacyl-tRNA deacylase 1 Antibody detects DTD1, an enzyme that contributes to translational quality control by removing incorrectly attached D-amino acids from transfer RNA molecules. Protein synthesis relies on aminoacyl-tRNA synthetases to charge tRNAs with appropriate L-amino acids. Occasional errors or unusual metabolic conditions can produce D-aminoacyl-tRNAs, which are generally unsuitable for normal ribosomal protein synthesis. DTD1 hydrolyzes the ester linkage connecting these aberrant amino acids to tRNA, helping preserve a functional pool of translation substrates.

The distinction between L- and D-amino acids is fundamental to protein structure because cellular ribosomes primarily assemble proteins from L-amino acids. Enzymes in the DTD family recognize stereochemical features of mischarged substrates and remove them without performing the full charging reaction themselves. DTD1 acts after tRNA aminoacylation and therefore complements, rather than replaces, proofreading mechanisms associated with aminoacyl-tRNA synthetases. This additional editing layer helps prevent inappropriate amino acid incorporation and reduces interference with translation. The designation D-aminoacyl-tRNA deacylase 1 Antibody refers to the same gene product.

DTD1 belongs to a conserved family of deacylases, although homologs can differ in their substrate preferences and biological environments. Its catalytic activity illustrates the importance of correcting errors before a charged tRNA reaches the ribosome. Maintaining tRNA quality is especially relevant when amino acid pools or cellular metabolic conditions change. The broader translation apparatus also relies on tRNA modifications, recycling, and surveillance pathways to maintain fidelity. NSJ Bioreagents includes DTD1 among proteins that support accurate gene expression through biochemical quality control of aminoacylated tRNAs. A DTD1 Antibody can help contextualize the molecular functions and regulation of this protein.

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Application Notes

The appropriate working dilution of the DTD1 Antibody / D-aminoacyl-tRNA deacylase 1 Antibody should be optimized by the end user.

Immunogen

The DTD1 Antibody was generated using e. coli-derived human DTD1 recombinant protein (amino acids M1-S179).

Storage

Following reconstitution, the DTD1 Antibody can be kept at 4°C for one month. Aliquot for extended storage at -20°C for up to six months, avoiding repeated freezing and thawing.

Alternate Names

DTD1 antibody, D-aminoacyl-tRNA deacylase 1 antibody, C20orf88 antibody, DUEB antibody, HARS2 antibody, Histidyl tRNA synthase related antibody, pqn 68 antibody

