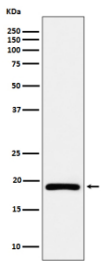
DUT Antibody / Deoxyuridine triphosphatase [clone 31D50] (FY12685)

Catalog No.	Formulation	Size
FY12685	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

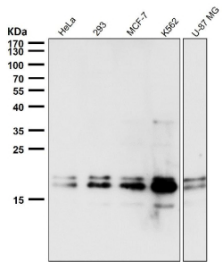
Recombinant RABBIT MONOCLONAL

Bulk quote request

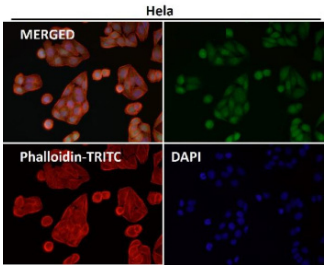
Availability	2-3 weeks
Species Reactivity	Human
Format	Liquid
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	31D50
Purity	Affinity-chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	P33316
Applications	Western blot: 1:500-1:2000 Immunocytochemistry/Immunofluorescence: 1:50-1:200 Flow Cytometry: 1:50
Limitations	This DUT antibody is available for research use only.



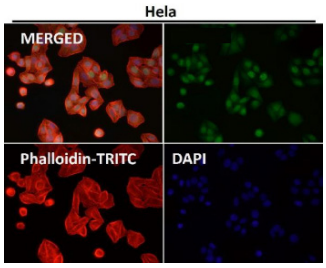
Western blot analysis of DUT expression in Ramos cell lysate using DUT antibody. Bands corresponding to the mitochondrial (~24-27 kDa) and the shorter nuclear/cytosolic (~18-21 kDa) isoforms can be detected; the ~18 kDa isoform can appear as a doublet consistent with modification- and processing-dependent mobility.



DUT Antibody Human Cell Line WB. Western blot analysis of HeLa, 293, MCF7, K562, and U-87 MG cell lysates using Deoxyuridine Triphosphatase / DUT Antibody demonstrates detection of DUT isoforms within the expected molecular weight range. Deoxyuridine Triphosphatase (DUT) is a nucleotide metabolism enzyme that regulates intracellular dUTP pools and protects genomic DNA from inappropriate uracil incorporation during replication. The predominant signal is observed at approximately 18-21 kDa, consistent with the mature nuclear/cytosolic DUT isoform, while higher molecular weight species corresponding to the mitochondrial precursor isoform may also be detected. The lower molecular weight isoform can appear as a doublet, reflecting post-translational modification and processing events associated with DUT maturation. Western blot was performed using a 1:5000 dilution of primary antibody. Predicted molecular weights: ~24-27 kDa (mitochondrial isoform) and ~18-21 kDa (nuclear/cytosolic isoform).



DUT Antibody HeLa IF. Immunofluorescent staining of HeLa cells using Deoxyuridine Triphosphatase / DUT Antibody demonstrates prominent nuclear localization of DUT (green), consistent with the expected distribution of the mature nuclear isoform responsible for regulating intracellular dUTP pools during DNA replication. DUT is a genome integrity enzyme that prevents inappropriate uracil incorporation into DNA and supports replication fidelity through maintenance of nucleotide homeostasis. Phalloidin-TRITC staining (red) highlights the actin cytoskeleton, while DAPI (blue) identifies cell nuclei. The observed nuclear staining pattern is consistent with the established role of DUT in nucleotide metabolism, DNA integrity, and genome maintenance pathways. Immunofluorescent staining was performed using DUT antibody at a 1:50 dilution.



Deoxyuridine Triphosphatase Antibody HeLa IF. Immunofluorescent staining of HeLa cells using Deoxyuridine Triphosphatase Antibody demonstrates strong nuclear localization of DUT (green), consistent with the expected distribution of the mature nuclear dUTPase isoform involved in regulation of nucleotide pools and preservation of DNA integrity. Deoxyuridine Triphosphatase is a nucleotide metabolism enzyme that prevents inappropriate uracil incorporation into DNA and supports genome maintenance during cellular proliferation. Phalloidin-TRITC staining (red) visualizes the actin cytoskeleton, while DAPI (blue) identifies cell nuclei. The observed staining pattern is consistent with the established role of DUT in DNA replication fidelity, nucleotide homeostasis, and genomic stability pathways. Immunofluorescent staining was performed using DUT antibody at a 1:150 dilution.

Description

DUT antibody detects deoxyuridine triphosphatase, an enzyme encoded by the DUT gene. This enzyme catalyzes the hydrolysis of dUTP to dUMP and pyrophosphate, thereby preventing the incorporation of uracil into DNA. This reaction maintains the balance of nucleotide pools and supports DNA replication fidelity. DUT is expressed in both nuclear and mitochondrial isoforms, generated through alternative splicing, enabling the enzyme to function across different subcellular compartments where nucleotide metabolism is critical.

DUT antibody is widely applied in DNA metabolism research, cancer biology, and virology. In DNA replication, DUT regulates the concentration of dUTP to minimize misincorporation of uracil into DNA. Failure to control dUTP levels leads to DNA repair cycles, strand breaks, and genomic instability. By detecting DUT, researchers can examine the mechanisms that safeguard DNA integrity and how these processes become dysregulated in disease.

Western blotting with DUT antibody detects the nuclear and mitochondrial isoforms of the protein in proliferative tissues. Immunohistochemistry maps DUT expression in tissues with high replication rates such as bone marrow and intestinal crypts. Immunofluorescence highlights the nuclear and mitochondrial distribution of DUT within single cells. ELISA allows quantification of enzyme expression in experimental and clinical samples. These approaches make DUT antibody a

versatile reagent for investigating DNA metabolism and genomic stability.

DUT is especially important in rapidly dividing cells and is upregulated during S phase of the cell cycle. This makes DUT an attractive target in oncology, since cancer cells often rely on high levels of DUT to manage imbalanced nucleotide pools. Inhibition of DUT activity has been explored as a strategy to increase DNA damage selectively in tumor cells. By applying DUT antibody, scientists can explore how altered nucleotide metabolism contributes to tumorigenesis and identify therapeutic opportunities.

Beyond cancer, DUT plays roles in virology. Several viruses, including HIV, exploit host nucleotide metabolism, and DUT expression influences viral replication. DUT activity may affect the effectiveness of nucleoside analog drugs by altering nucleotide balance. These insights make DUT antibody a useful tool for studying virus-host interactions and antiviral drug responses.

DUT also contributes to developmental biology. The enzyme supports DNA synthesis during embryogenesis and tissue regeneration. Genetic mutations or dysregulation of DUT are linked to cellular stress responses and mitochondrial dysfunction. Studying DUT with antibody based approaches provides insights into both normal development and pathological processes.

DUT antibody from NSJ Bioreagents provides strong specificity for deoxyuridine triphosphatase detection. Its proven performance across research techniques ensures accurate evaluation of DNA metabolism in health and disease.

For additional information on DUT function, nucleotide metabolism, and genome maintenance pathways, visit our DUT Antibody / Genome Integrity Enzyme Antibody page.

Application Notes

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

Immunogen

A synthesized peptide derived from human DUT was used as the immunogen for the DUT antibody.

Storage

Store the DUT antibody at -20oC.

Alternate Names

Deoxyuridine Triphosphatase Antibody, DUT Antibody, dUTP Pyrophosphatase Antibody, dUTPase Antibody, Nucleotide Metabolism Enzyme Antibody, DNA Integrity Enzyme Antibody, Uracil Metabolism Enzyme Antibody

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