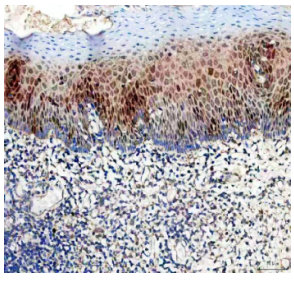
DUT Antibody / Genome Integrity Enzyme Antibody (FY13460)

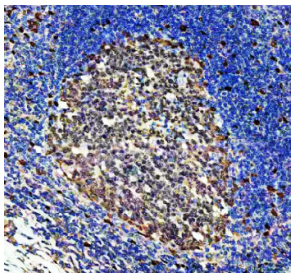
Catalog No.	Formulation	Size
FY13460	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

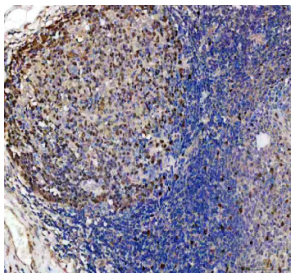
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P33316
Localization	Nuclear, Mitochondrial
Applications	Western Blot: 0.25-0.5ug/ml Immunohistochemistry: 2-5ug/ml Immunofluorescence: 5ug/ml Immunoprecipitation: 0.5-2ug/500ug of lysate
Limitations	This DUT Antibody / Genome Integrity Enzyme Antibody is available for research use only.



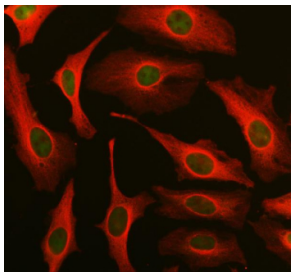
DUT Antibody Human Tonsil IHC. Immunohistochemistry staining of FFPE human tonsil using DUT antibody demonstrates prominent nuclear staining within proliferative lymphoid cell populations of the germinal center region, consistent with the expected localization of Deoxyuridine Triphosphatase (DUT). DUT is a genome integrity enzyme that regulates intracellular nucleotide pools and prevents inappropriate uracil incorporation into DNA during replication. The observed nuclear staining pattern is consistent with elevated nucleotide metabolism and DNA replication activity in actively proliferating lymphocytes and supports the utility of this antibody for studies of genome maintenance, DNA replication fidelity, and cellular proliferation pathways. HIER: heat-mediated antigen retrieval in EDTA buffer (pH 8.0).



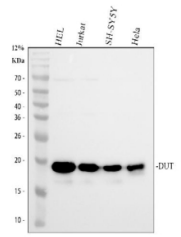
DUT Antibody Human Tonsil Germinal Center IHC. Immunohistochemistry staining of FFPE human tonsil using DUT antibody demonstrates prominent nuclear staining within germinal center lymphocytes, consistent with the expected localization of Deoxyuridine Triphosphatase (DUT). DUT is a genome integrity enzyme that maintains nucleotide pool balance and prevents inappropriate uracil incorporation into DNA during replication. The strong nuclear staining observed within actively proliferating lymphoid cells is consistent with increased demand for nucleotide metabolism and DNA replication fidelity in germinal center reactions. Variable staining intensity among cellular populations reflects differences in proliferative activity and supports the utility of this antibody for studies of genome maintenance, cellular proliferation, and DNA integrity pathways. HIER: heat-mediated antigen retrieval in EDTA buffer (pH 8.0).



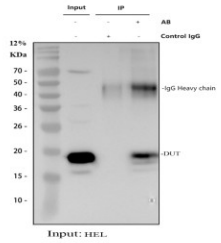
DUT Antibody Human Tonsil IHC. Immunohistochemistry staining of FFPE human tonsil using DUT antibody demonstrates widespread nuclear staining throughout lymphoid compartments, with particularly prominent immunoreactivity within germinal center-associated cell populations. DUT (Deoxyuridine Triphosphatase) is a genome integrity enzyme that regulates intracellular nucleotide pools and protects DNA from inappropriate uracil incorporation during replication. The broad nuclear staining pattern observed across proliferative immune cell populations is consistent with the established role of DUT in supporting DNA replication fidelity, genome maintenance, and cellular proliferation. These findings support the utility of DUT antibody for studies of nucleotide metabolism, DNA integrity pathways, and lymphoid tissue biology. HIER: heat-mediated antigen retrieval in EDTA buffer (pH 8.0).



DUT Antibody HeLa Cell IF. Immunofluorescent staining of human HeLa cells using DUT antibody demonstrates predominant nuclear localization of Deoxyuridine Triphosphatase (DUT), shown in green, consistent with its role in regulating nucleotide pools and maintaining DNA replication fidelity. DUT is a genome integrity enzyme that prevents inappropriate uracil incorporation into DNA and supports genomic stability during cellular proliferation. Co-staining with alpha tubulin (red) highlights the cytoplasmic microtubule network and provides contrast to the nuclear distribution of DUT. The observed staining pattern is consistent with the established function of DUT in nucleotide metabolism, genome maintenance, and DNA integrity pathways. Alpha tubulin was used as a cytoplasmic marker.



DUT Antibody Human Cell Line WB. Western blot analysis of DUT using anti-DUT antibody demonstrates a predominant immunoreactive band at approximately 18 kDa in human HEL, Jurkat, SH-SY5Y, and HeLa cell lysates. DUT (Deoxyuridine Triphosphatase) is a genome integrity enzyme that regulates intracellular nucleotide pools and prevents inappropriate uracil incorporation into DNA during replication. The observed lower molecular weight species is consistent with the mature nuclear dUTPase isoform, which results from intracellular processing of the DUT precursor protein. DUT is known to exist as multiple isoforms, including nuclear and mitochondrial forms, reflecting its diverse roles in nucleotide metabolism, DNA replication fidelity, and genome maintenance. Predicted molecular weight: ~27 kDa precursor; mature nuclear isoform commonly observed at approximately 18 kDa.



Description

DUT Antibody / Genome Integrity Enzyme Antibody is designed for the detection and study of DUT (dUTP Pyrophosphatase), an essential enzyme that protects genomic DNA by regulating intracellular nucleotide pools and preventing inappropriate uracil incorporation into DNA. DUT catalyzes the hydrolysis of dUTP to dUMP and pyrophosphate, thereby reducing cellular dUTP concentrations while simultaneously generating substrate required for thymidine nucleotide biosynthesis. Through this critical function, DUT helps maintain DNA integrity and supports accurate genome replication in proliferating cells.

As a genome integrity enzyme, DUT serves as a key safeguard against mutagenesis and genomic instability. Excessive intracellular dUTP can lead to incorporation of uracil into newly synthesized DNA, triggering DNA repair pathways and increasing the risk of strand breaks, replication stress, and chromosomal abnormalities. By controlling nucleotide pool balance, DUT minimizes these potentially damaging events and helps preserve genome fidelity. This protective role is particularly important in rapidly dividing cells where high rates of DNA synthesis create increased demand for precise nucleotide regulation.

DUT occupies a central position at the intersection of nucleotide metabolism, DNA replication, and DNA repair pathways. The enzyme contributes to maintenance of nucleotide homeostasis while supporting cellular mechanisms that preserve genomic stability. Because accurate genome duplication depends upon proper nucleotide balance, DUT has become an important target for studies examining replication-associated stress, chromosome maintenance, and cellular responses to DNA damage. Researchers frequently investigate DUT alongside other proteins involved in nucleotide biosynthesis, replication fidelity, and genome surveillance pathways.

Interest in DUT extends beyond its fundamental role in nucleotide metabolism. Alterations in pathways governing DNA synthesis and nucleotide balance have been implicated in cancer, therapeutic resistance, developmental disorders, and other diseases characterized by abnormal cellular proliferation. Consequently, DUT continues to be investigated in studies of tumor biology, DNA damage responses, replication stress mechanisms, and therapeutic strategies targeting nucleotide metabolism. Its highly conserved enzymatic activity and indispensable role in genome protection make DUT a valuable marker across a broad range of biologic disciplines.

As a genome integrity enzyme, DUT contributes to the preservation of genetic information across successive generations of cells. By preventing accumulation of uracil within DNA and supporting faithful genome replication, DUT helps maintain cellular homeostasis and long-term chromosomal stability. These functions have established DUT as an important research target for understanding how cells coordinate nucleotide metabolism with genome maintenance and DNA repair processes.

DUT Antibody is useful for investigating nucleotide metabolism, DNA replication fidelity, genome maintenance, and DNA repair-associated pathways. Researchers utilize DUT Antibody reagents to evaluate protein expression patterns and study molecular mechanisms regulating genomic stability, cellular proliferation, and maintenance of DNA integrity in both normal and disease-related biological systems.

Explore additional antibodies to genome maintenance proteins, DNA repair-associated enzymes, and nucleotide metabolism regulators on our Cell Biology Antibodies page.

Application Notes

Optimal dilution of the DUT Antibody / Genome Integrity Enzyme Antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the C-terminus of human Deoxyuridine triphosphatase was used as the immunogen for DUT antibody.

Storage

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

Alternate Names

DUT Antibody, dUTP Pyrophosphatase Antibody, Deoxyuridine Triphosphatase Antibody, Genome Integrity Enzyme Antibody, Nucleotide Metabolism Enzyme Antibody, DNA Integrity Enzyme Antibody, Genome Maintenance Enzyme Antibody

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