

DCTPP1 Antibody / dCTP pyrophosphatase 1 / XTP3TPA (FY12805)

Catalog No.	Formulation	Size
FY12805	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	Q9H773
Applications	ELISA: 0.1-0.5ug/ml Flow Cytometry: 1-3ug/million cells Immunohistochemistry: 2-5ug/ml Western Blot: 0.25-0.5ug/ml
Limitations	This DCTPP1 antibody is available for research use only.

Description

DCTPP1 antibody detects dCTP pyrophosphatase 1 (also known as XTP3TPA), a nucleotide pool sanitizing enzyme that prevents the incorporation of damaged or modified nucleotides into DNA. Encoded by the DCTPP1 gene on chromosome 16p13.3, this enzyme hydrolyzes dCTP and its oxidized derivatives to their monophosphate forms, maintaining genomic integrity by reducing mutagenic nucleotide incorporation. DCTPP1 plays an essential role in DNA replication fidelity, repair, and protection against oxidative stress-induced mutagenesis.

Located primarily in the nucleus and mitochondria, DCTPP1 acts as a homotetrameric hydrolase with substrate specificity for dCTP and 5-methyl-dCTP. By regulating the deoxynucleotide pool, it prevents mispairing and epigenetic instability caused by cytosine modifications. Its activity supports accurate DNA replication and limits the formation of base substitution mutations. DCTPP1 expression increases under oxidative stress and in proliferating cells to safeguard replication accuracy.

The DCTPP1 antibody is widely used in DNA metabolism, cancer, and oxidative stress research to investigate nucleotide sanitization, genome maintenance, and replication control. Western blot analysis detects a 21 kilodalton band

corresponding to DCTPP1, while immunofluorescence reveals both nuclear and mitochondrial localization depending on cell type. This antibody enables researchers to explore DNA repair dynamics and nucleotide pool balance in diverse biological systems.

Loss or dysregulation of DCTPP1 is associated with increased mutation rates, mitochondrial dysfunction, and genomic instability. Elevated expression has been observed in rapidly dividing tumor cells, where it supports proliferation by maintaining balanced nucleotide pools. The DCTPP1 antibody provides a powerful tool for studying DNA replication accuracy, oxidative defense, and cancer cell metabolism. NSJ Bioreagents supplies this antibody validated for western blotting, immunohistochemistry, and immunofluorescence, ensuring consistent detection in studies of genome integrity and nucleotide metabolism.

Application Notes

Optimal dilution of the DCTPP1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human XTP3TPA/DCTPP1 recombinant protein (Position: R22-T170) was used as the immunogen for the DCTPP1 antibody.

Storage

After reconstitution, the DCTPP1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.