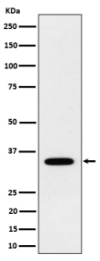
NTHL1 Antibody / Endonuclease III like protein 1 [clone 30N17] (FY12897)

Catalog No.	Formulation	Size
FY12897	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	30N17
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	P78549
Applications	Western blot: 1:500-1:2000 Immunohistochemistry: 1:50-1:200 Immunocytochemistry/Immunofluorescence: 1:50-1:200
Limitations	This NTHL1 antibody is available for research use only.



Western blot analysis of NTH1 expression in human 293 cell lysate using NTHL1 antibody. Predicted molecular weight ~34 kDa.

Description

NTHL1 antibody detects Endonuclease III like protein 1, encoded by the NTHL1 gene. Endonuclease III like protein 1 is a

DNA glycosylase that plays a central role in the base excision repair pathway, one of the most important mechanisms for maintaining genome integrity in all living cells. This enzyme initiates repair of oxidative DNA damage by excising modified pyrimidines such as thymine glycol, preventing mutagenesis and carcinogenesis caused by reactive oxygen species. NTHL1 antibody allows researchers to monitor the expression, activity, and localization of this enzyme, providing insight into how cells combat DNA damage from endogenous metabolism as well as environmental exposures including radiation, toxins, and inflammatory processes. By focusing on Endonuclease III like protein 1, scientists can assess the contribution of base excision repair to mutational landscapes, genomic stability, and disease prevention.

Endonuclease III like protein 1 acts at the first step of repair by recognizing oxidized pyrimidines and cleaving the glycosidic bond to release the damaged base. It then incises the DNA backbone at the abasic site, creating a substrate for downstream repair enzymes such as AP endonuclease, DNA polymerase, and DNA ligase. Research with NTHL1 antibody has demonstrated its nuclear localization, particularly in response to oxidative stress where it accumulates at DNA damage foci. In addition to thymine glycol, NTHL1 recognizes a broad spectrum of oxidized bases, ensuring that replication errors caused by damaged DNA templates are minimized. The evolutionary conservation of this enzyme underscores its critical role, as its bacterial counterpart Endonuclease III performs similar functions. In mammalian cells, NTHL1 works in parallel with other glycosylases such as OGG1, MUTYH, and NEIL proteins to ensure comprehensive repair coverage, highlighting the redundancy and robustness of the base excision repair network.

Mutations in NTHL1 have been directly linked to hereditary cancer predisposition syndromes. Families carrying germline biallelic mutations in NTHL1 display colorectal adenomatous polyposis and a markedly increased risk of colorectal cancer. These patients present with a unique mutational signature characterized by C to T transitions, reflecting the absence of repair for oxidized cytosines. Beyond colorectal cancer, NTHL1 mutations have been associated with breast, endometrial, and other solid tumors, making it a pan cancer predisposition gene. Research using NTHL1 antibody has been pivotal in defining the functional consequences of these mutations, showing that impaired glycosylase activity leads to accumulation of unrepaired lesions and increased mutagenesis. This work has placed Endonuclease III like protein 1 at the center of discussions about DNA repair based cancer susceptibility syndromes, and it continues to serve as a potential biomarker for inherited cancer risk and mutational processes in sporadic tumors.

In addition to cancer biology, NTHL1 has significance in aging and degenerative conditions. DNA damage caused by oxidative stress accumulates with age, and defects in repair pathways such as those mediated by NTHL1 can exacerbate this accumulation. Studies employing NTHL1 antibody have explored the role of base excision repair in age related cognitive decline, neuronal death, and tissue degeneration. Insights gained from these studies are helping define how DNA repair contributes to healthy aging and lifespan. Furthermore, since oxidative stress is implicated in cardiovascular disease, diabetes, and inflammatory disorders, NTHL1 antibody provides a tool for assessing whether DNA repair defects contribute to these broader conditions.

Methodologically, NTHL1 antibody is widely used in western blotting, immunohistochemistry, immunofluorescence, and chromatin immunoprecipitation. Western blotting demonstrates tissue specific expression and relative abundance, while immunohistochemistry identifies nuclear localization in normal and diseased tissues. Immunofluorescence provides spatial resolution, allowing visualization of repair foci colocalizing with markers such as gamma H2AX. Chromatin immunoprecipitation with NTHL1 antibody has been used to identify repair associated DNA binding sites, adding to our understanding of how the protein interacts with chromatin during repair events. These experimental applications ensure that NTHL1 antibody remains versatile in both basic research and translational contexts.

From a therapeutic standpoint, targeting DNA repair deficiencies in tumors is a promising strategy. Similar to the use of PARP inhibitors in BRCA deficient cancers, tumors deficient in NTHL1 may exhibit unique vulnerabilities that can be exploited therapeutically. Researchers using NTHL1 antibody can stratify patients for clinical trials, investigate repair capacity in tumor biopsies, and explore synthetic lethal interactions. As the field of precision oncology grows, NTHL1 antibody will continue to be indispensable for developing biomarker driven treatment strategies. NSJ Bioreagents supports these efforts by providing validated antibodies for reliable and reproducible detection of Endonuclease III like protein 1 across diverse platforms and experimental systems.

Application Notes

Optimal dilution of the NTHL1 antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human NTH1 was used as the immunogen for the NTHL1 antibody.

Storage

Store the NTHL1 antibody at -20oC.

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