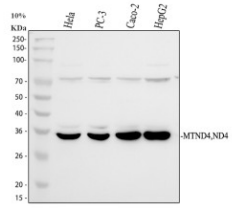
MT-ND4 Antibody / NADH Dehydrogenase Subunit 4 Antibody (RQ5342)

Catalog No.	Formulation	Size
RQ5342	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P03905
Applications	Western blot: 0.5-1ug/ml Direct ELISA: 0.1-0.5ug/ml
Limitations	This MT-ND4 Antibody / NADH Dehydrogenase Subunit 4 Antibody is available for research use only.



MT-ND4 Antibody WB in Human Cell Lines. Western blot analysis of human HeLa (lane 1), PC-3 (lane 2), Caco-2 (lane 3), and HepG2 (lane 4) whole cell lysates using the NADH Dehydrogenase Subunit 4 Antibody at 0.5 ug/ml. Samples containing 30 ug of total protein per lane were separated by 10% SDS-PAGE under reducing conditions. A prominent band is detected at approximately 35-40 kDa in all four samples, below the calculated molecular weight of 52 kDa. Published mass spectrometry analysis has identified mitochondrial ND4 migrating near 40 kDa, consistent with the anomalous electrophoretic mobility observed for this hydrophobic membrane protein.

Description

MT-ND4 Antibody / NADH Dehydrogenase Subunit 4 Antibody recognizes a mitochondrially encoded protein that forms part of respiratory chain complex I, also known as NADH:ubiquinone oxidoreductase. The MT-ND4 gene is located in mitochondrial DNA and encodes NADH dehydrogenase subunit 4, a highly hydrophobic membrane protein embedded in the inner mitochondrial membrane. ND4 is one of seven complex I subunits encoded by the mitochondrial genome, while the remaining subunits are encoded by nuclear genes and imported into mitochondria.

Complex I is the first major enzyme complex of the mitochondrial electron transport chain. It transfers electrons from NADH to ubiquinone through a series of redox-active cofactors, coupling this process to proton translocation across the inner mitochondrial membrane. The resulting electrochemical gradient contributes to the proton motive force used by ATP synthase to generate ATP. ND4 is located within the membrane arm of complex I and participates in the structural machinery responsible for proton translocation rather than directly transferring electrons between redox centers.

The membrane arm of mammalian complex I contains several conserved antiporter-like subunits, including ND2, ND4, and ND5. These proteins contribute to the conformational changes and proton-transfer mechanisms that couple electron transport to energy conservation. ND4 contains multiple transmembrane helices and forms part of the extensive network of interactions required for complex I stability and function. Proper assembly of mitochondrial and nuclear-encoded subunits is essential for maintaining respiratory activity and efficient oxidative phosphorylation.

Pathogenic variants in MT-ND4 are associated with mitochondrial disorders, particularly Leber hereditary optic neuropathy (LHON). The m.11778G>A variant, which produces the ND4 p.Arg340His substitution, is among the most common genetic causes of LHON and can impair complex I function. Mitochondrial DNA heteroplasmy, tissue-specific energy requirements, and additional genetic or environmental factors can influence disease expression. Research involving MT-ND4 contributes to understanding mitochondrial respiratory dysfunction, complex I assembly, and the relationship between oxidative phosphorylation and cellular energy metabolism. NSJ Bioreagents offers this MT-ND4 Antibody for investigating a key membrane component of the mitochondrial electron transport chain.

Explore related proteins involved in mitochondrial respiration, oxidative phosphorylation, and cellular energy metabolism in our Metabolism Antibodies collection.

Application Notes

Optimal dilution of the MT-ND4 Antibody / NADH Dehydrogenase Subunit 4 Antibody should be determined by the researcher.

Immunogen

Amino acids M10-S459 from the human protein were used as the immunogen for the MT-ND4 antibody.

Storage

After reconstitution, the MT-ND4 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

NADH-ubiquinone oxidoreductase chain 4 antibody, NADH dehydrogenase 4 antibody, Mitochondrial NADH dehydrogenase subunit 4 antibody, Complex I ND4 subunit antibody

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