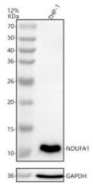
NDUFA1 Antibody / NADH dehydrogenase ubiquinone 1 alpha subcomplex subunit 1 (FY12782)

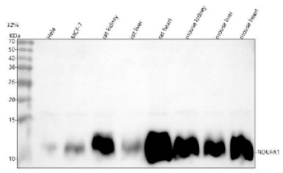
Catalog No.	Formulation	Size
FY12782	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

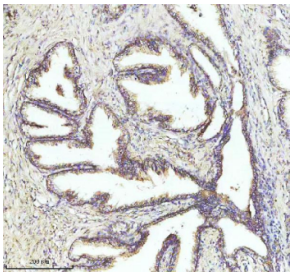
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	O15239
Localization	Cytoplasm (Mitochondria)
Applications	Western Blot: 0.25-0.5ug/ml Immunohistochemistry: 2-5ug/ml ELISA: 0.1-0.5ug/ml
Limitations	This NDUFA1 antibody is available for research use only.



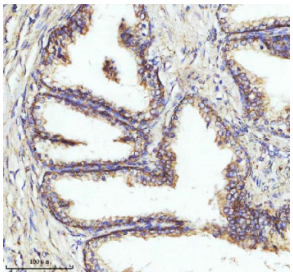
Western blot analysis of NDUFA1 using anti-NDUFA1 antibody. Lane 1: human THP-1 whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-NDUFA1 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. A predominant band is detected at ~10-11 kDa, consistent with the known slower SDS-PAGE migration of this small, hydrophobic Complex I subunit relative to its ~7-8 kDa calculated mass.



Western blot analysis of NDUFA1 using anti-NDUFA1 antibody. Lane 1: human Hela whole cell lysates, Lane 2: human MCF-7 whole cell lysates, Lane 3: rat kidney tissue lysates, Lane 4: rat liver tissue lysates, Lane 5: rat heart tissue lysates, Lane 6: mouse kidney tissue lysates, Lane 7: mouse liver tissue lysates, Lane 8: mouse heart tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-NDUFA1 antibody at 0.25 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. A predominant band is detected at ~10-11 kDa, consistent with the known slower SDS-PAGE migration of this small, hydrophobic Complex I subunit relative to its ~7-8 kDa calculated mass.



Immunohistochemical staining of NDUFA1 using anti-NDUFA1 antibody. NDUFA1 was detected in a paraffin-embedded section of human prostate cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-NDUFA1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunohistochemical staining of NDUFA1 using anti-NDUFA1 antibody. NDUFA1 was detected in a paraffin-embedded section of human prostate cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-NDUFA1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.

Description

NDUFA1 antibody detects NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1, a core accessory protein of mitochondrial Complex I that contributes to oxidative phosphorylation and energy metabolism. Encoded by the NDUFA1 gene on the X chromosome (Xp11.3), this protein is one of approximately 45 subunits forming NADH:ubiquinone oxidoreductase, the first enzyme in the mitochondrial electron transport chain. NDUFA1 helps anchor hydrophobic membrane components of Complex I to its hydrophilic catalytic core, maintaining structural stability and supporting efficient electron transfer from NADH to ubiquinone.

NDUFA1 is a small, highly conserved protein localized to the mitochondrial inner membrane. It associates with other accessory subunits of the alpha subcomplex, including NDUFA2 and NDUFA3, and is essential for the assembly and functional integrity of Complex I. By stabilizing the membrane domain, NDUFA1 ensures proper coupling of proton translocation with electron transfer, thereby contributing to the mitochondrial proton gradient and ATP synthesis. Mutations in NDUFA1 can impair Complex I activity, leading to mitochondrial encephalomyopathy, lactic acidosis, and neurodegenerative diseases.

The NDUFA1 antibody is widely used in mitochondrial biology, metabolism, and neurodegeneration research to study electron transport chain organization and oxidative phosphorylation. Western blot analysis identifies a 7 kilodalton band corresponding to NDUFA1, while immunofluorescence reveals mitochondrial localization colocalizing with markers such as TOM20 and COX IV. This antibody allows characterization of mitochondrial respiratory complexes under physiological and disease conditions.

Defects in Complex I assembly caused by NDUFA1 dysfunction contribute to reduced ATP production and excessive reactive oxygen species generation, triggering oxidative stress and apoptosis. The NDUFA1 antibody provides a key tool for investigating mitochondrial respiratory disorders, metabolic adaptation, and redox regulation. NSJ Bioreagents supplies this antibody validated for its applications, ensuring precise and reproducible detection of NDUFA1 in mitochondrial research.

Application Notes

Optimal dilution of the NDUFA1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human NDUFA1 recombinant protein (Position: M1-D70) was used as the immunogen for the NDUFA1 antibody.

Storage

After reconstitution, the NDUFA1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Copyright © NSJ Bioreagents. All rights reserved.