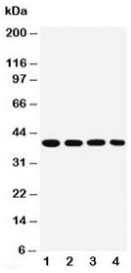
MTCO1 Antibody / Cytochrome C Oxidase Subunit I Antibody (R30376)

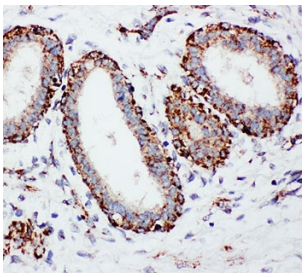
Catalog No.	Formulation	Size
R30376	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

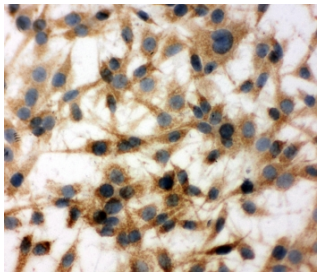
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide/thimerosal
UniProt	P00395
Localization	Cytoplasmic (mitochondrial)
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 0.5-1ug/ml Immunocytochemistry: 0.5-1ug/ml
Limitations	This MTCO1 Antibody / Cytochrome C Oxidase Subunit I Antibody is available for research use only.



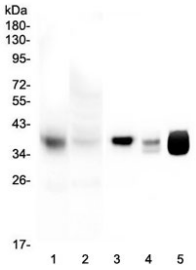
MTCO1 Antibody by WB in Human SMMC-7721, MCF-7, Raji and SW620 Cell Lysates. Western blot analysis of human SMMC-7721 (lane 1), MCF-7 (lane 2), Raji (lane 3), and SW620 (lane 4) whole-cell lysates using rabbit polyclonal MTCO1 antibody. A strong, distinct immunoreactive band is detected at approximately 37-40 kDa in all four samples. Although the calculated molecular weight of cytochrome c oxidase subunit I is approximately 57 kDa, MTCO1 is known to exhibit faster electrophoretic migration during SDS-PAGE, potentially related to its highly hydrophobic, multitransmembrane structure.



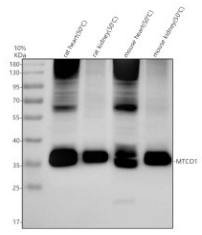
MTCO1 Antibody by IHC in Human Breast Cancer Tissue. Immunohistochemistry staining of human breast cancer tissue using rabbit polyclonal MTCO1 antibody. Strong brown immunoreactivity is observed in the cytoplasm of malignant epithelial cells, with a granular distribution and prominent staining along the periphery of glandular structures. Cell nuclei exhibit comparatively little staining. This pattern is consistent with the mitochondrial localization of cytochrome c oxidase subunit I, a catalytic component of respiratory complex IV involved in oxidative phosphorylation.



MTCO1 Antibody by ICC in Rat C6 Glioma Cells. Immunocytochemistry staining of rat C6 glioma cells using rabbit polyclonal MTCO1 antibody. Brown immunoreactivity is distributed throughout the cytoplasm, with prominent perinuclear and granular staining. Cell nuclei are counterstained blue and exhibit comparatively little brown signal. The cytoplasmic distribution is consistent with the mitochondrial localization of cytochrome c oxidase subunit I, an integral membrane protein of mitochondrial respiratory complex IV.



MTCO1 Antibody by WB in Human and Rodent Cell and Tissue Lysates. Western blot analysis of human HeLa mitochondrial fraction (lane 1), HeLa whole-cell lysate (lane 2), Caco-2 cells (lane 3), rat heart tissue (lane 4), and mouse heart tissue (lane 5) using rabbit polyclonal MTCO1 antibody. Immunoreactive bands are detected at approximately 35-40 kDa across the five samples, below the calculated molecular weight of approximately 57 kDa for cytochrome c oxidase subunit I. This lower apparent molecular weight is consistent with previously reported anomalous SDS-PAGE migration of MTCO1. Signal intensity varies among the samples, with a particularly prominent band in mouse heart lysate.



MTCO1 Antibody by WB in Human and Rodent Mitochondrial Samples. Western blot analysis of human and rodent cell lysates using rabbit polyclonal MTCO1 antibody. Prominent immunoreactive bands are detected at approximately 35 kDa in all four sample lanes, with stronger signal in lanes 1 and 3. The apparent molecular weight is below the calculated 57 kDa mass of cytochrome c oxidase subunit I, consistent with the faster electrophoretic migration commonly observed for this highly hydrophobic mitochondrial membrane protein. Additional higher-molecular-weight bands are visible in lanes 1 and 3.

Description

MTCO1 Antibody recognizes mitochondrially encoded cytochrome c oxidase subunit I, a highly conserved protein that forms the catalytic core of mitochondrial respiratory complex IV. Also known as MT-CO1, COX1, and cytochrome c oxidase subunit 1, this protein is encoded by the mitochondrial MT-CO1 gene and is located within the inner mitochondrial membrane. MTCO1 is an essential component of the electron transport chain, where it contributes to the transfer of electrons to molecular oxygen during oxidative phosphorylation.

Cytochrome c oxidase, also called complex IV, is the terminal enzyme of the mitochondrial respiratory chain. It accepts electrons from reduced cytochrome c and transfers them to oxygen, producing water. This process is coupled to proton translocation across the inner mitochondrial membrane, helping establish the electrochemical gradient required for ATP synthesis. Because oxidative phosphorylation provides much of the ATP needed for cellular activities, efficient complex IV function is particularly important in metabolically active tissues, including the heart, skeletal muscle, brain, and liver.

Cytochrome c oxidase subunit I contains multiple transmembrane helices and houses the heme a and heme a3-CuB catalytic centers responsible for electron transfer and oxygen reduction. The protein associates with other mitochondrially encoded and nuclear-encoded subunits to form the mature respiratory complex. Proper synthesis, membrane insertion,

and assembly of MTCO1 are necessary for complex IV stability and mitochondrial respiratory activity.

Unlike most mitochondrial proteins, MTCO1 is synthesized within mitochondria using the mitochondrial genetic code. Its expression depends on mitochondrial DNA integrity, transcription, and translation. Pathogenic variants affecting MT-CO1 can impair respiratory chain function and contribute to mitochondrial disorders characterized by deficient cellular energy production. The consequences of these defects vary according to mutation severity, tissue energy requirements, and the proportion of affected mitochondrial genomes.

MTCO1 is frequently investigated as a marker of mitochondrial respiratory complex IV expression. Western blotting, immunohistochemistry, and immunocytochemistry can provide information about its abundance and distribution in different experimental systems. However, MTCO1 protein levels do not independently establish complex IV enzymatic activity, and functional studies may be required to evaluate mitochondrial respiratory performance.

An MTCO1 Antibody from NSJ Bioreagents supports research investigating mitochondrial respiratory chain organization, cytochrome c oxidase expression, oxidative phosphorylation, and the molecular mechanisms underlying mitochondrial dysfunction.

For additional antibodies targeting mitochondrial respiratory chain proteins and markers of mitochondrial function, explore our Mitochondria Marker Antibody collection.

Application Notes

The stated application concentrations are suggested starting amounts. Titration of the MTCO1 Antibody / Cytochrome C Oxidase Subunit I Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

An amino acid sequence from the C-terminus of the human protein (PYHTFEEPVYMKS) was used as the immunogen for this MTCO1 antibody.

Storage

After reconstitution, the MTCO1 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

MT-CO1 antibody, Cytochrome C Oxidase Subunit I antibody, Cytochrome C Oxidase Subunit 1 antibody, COX1 antibody, COI antibody, Mitochondrially Encoded Cytochrome C Oxidase I antibody, Complex IV Subunit 1 antibody

References (1)

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