

TIMM44 Antibody / Translocase of inner mitochondrial membrane 44 Antibody (FY13631)

Catalog No.	Formulation	Size
FY13631	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

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Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na ₂ HPO ₄ .
UniProt	O43615
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml Immunofluorescence : 5ug/ml ELISA : 0.1-0.5 ug/ml
Limitations	For research use only, this TIMM44 Antibody / Translocase of inner mitochondrial membrane 44 Antibody is not intended for diagnostic or therapeutic use.

TIMM44 Antibody by IF in HeLa cells. Immunofluorescence staining of HeLa cells using Translocase of inner mitochondrial membrane 44 Antibody shows green cytoplasmic fluorescence with a punctate distribution and blue DAPI-stained nuclei. The staining pattern is compatible with mitochondrial-associated localization, although mitochondrial colocalization was not directly assessed. Cells were incubated with primary antibody at 5 ug/mL overnight at 4°C and visualized with a fluorescent anti-rabbit secondary antibody.

TIMM44 Antibody by IHC in human lung carcinoma. Immunohistochemistry of paraffin-embedded human lung carcinoma using Translocase of inner mitochondrial membrane 44 Antibody shows prominent brown DAB staining in tumor epithelial structures with blue hematoxylin counterstaining. Heat-induced antigen retrieval was performed in EDTA buffer at pH 8.0. Sections were incubated with 2 ug/mL primary antibody overnight at 4°C before HRP-based chromogenic detection.

TIMM44 Antibody by IHC in human lung tissue. Immunohistochemistry of paraffin-embedded human lung using Translocase of inner mitochondrial membrane 44 Antibody reveals brown staining along alveolar epithelial structures, with blue nuclear counterstaining. Antigen retrieval was performed in EDTA buffer at pH 8.0, followed by overnight incubation with 2 ug/mL primary antibody at 4oC and HRP-DAB visualization.

TIMM44 Antibody by WB in human PC-3 (lane 1), 293T (lane 2), K562 (lane 3), HEL (lane 4), rat heart (lane 5), rat kidney (lane 6), mouse heart (lane 7), and mouse kidney (lane 8). Western blot analysis using Translocase of inner mitochondrial membrane 44 Antibody detects an immunoreactive band near 44 kDa, below the calculated molecular weight of approximately 51 kDa. Published studies have described proteolytic maturation of mitochondrial TIMM44, with removal of an approximately 6 kDa N-terminal segment, which may explain the observed migration. Samples were prepared under reducing conditions, with 30 ug of total protein per lane, and resolved by 10% SDS-PAGE. The lanes contain human PC-3 (lane 1), 293T (lane 2), K562 (lane 3), HEL (lane 4), rat heart (lane 5), rat kidney (lane 6), mouse heart (lane 7), and mouse kidney (lane 8). Proteins were transferred to nitrocellulose, blocked with 5% nonfat milk, and incubated with primary antibody at 0.5 ug/mL overnight at 4oC. HRP-conjugated secondary antibody and chemiluminescence were used for detection.

Description

TIMM44 Antibody / Translocase of inner mitochondrial membrane 44 Antibody targets a component of the machinery that imports nuclear-encoded proteins into mitochondria. Although mitochondria possess their own genome, most mitochondrial proteins are synthesized on cytosolic ribosomes and must cross one or both mitochondrial membranes. TIMM44 operates on the matrix-facing side of the inner membrane, where it helps connect protein translocation to an ATP-driven import motor.

Many proteins destined for the mitochondrial matrix carry an amino-terminal targeting sequence that is recognized by the outer membrane import machinery. After passage through the outer membrane, precursor proteins engage the TIM23 translocase in the inner membrane. Membrane potential helps move positively charged targeting sequences across this barrier, but complete import of many proteins also requires the presequence translocase-associated motor. TIMM44 acts as a scaffold that associates with the TIM23 system and helps position mitochondrial Hsp70 near the emerging polypeptide chain.

Mitochondrial Hsp70 binds segments of incoming precursor proteins and uses cycles of ATP binding and hydrolysis to promote their movement into the matrix. TIMM44 contributes to the spatial coordination of this process, allowing the motor to act at the translocation channel. The motor also depends on additional regulatory proteins that stimulate nucleotide turnover and coordinate successive binding events. Efficient import therefore emerges from a cooperative assembly rather than the activity of any single translocase component.

Protein import is indispensable for mitochondrial metabolism because enzymes involved in the tricarboxylic acid cycle, genome maintenance, and numerous biosynthetic pathways are encoded in the nucleus. Impaired import can disturb mitochondrial proteostasis and create secondary stress responses as precursor proteins accumulate or fail to reach their intended locations.

NSJ Bioreagents offers this TIMM44 Antibody to support studies of the mitochondrial protein import motor and its coordination with the TIM23 translocase. Understanding how TIMM44 anchors chaperone activity to the inner membrane helps explain how mitochondria maintain their protein complement despite synthesizing most of it outside the organelle.

Explore related research targets in our [Cell Biology Antibodies](#) collection.

Application Notes

The recommended approach is to establish the optimal working dilution of the TIMM44 Antibody / Translocase of inner mitochondrial membrane 44 Antibody through preliminary testing.

Immunogen

The TIMM44 Antibody was generated using e. coli-derived human TIMM44 recombinant protein (amino acids D65-R418).

Storage

After reconstitution, keep the TIMM44 Antibody at 4oC for up to one month. Alternatively, store aliquots at -20oC for up to six months. Avoid multiple freezing and thawing cycles.

Alternate Names

TIMM44 antibody, Mitochondrial import inner membrane translocase subunit TIM44 antibody, translocase of inner mitochondrial membrane 44 antibody, TIMM 44 antibody, TIM44 antibody, MIMT44 antibody