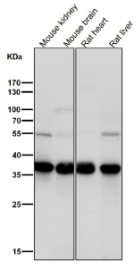
TIM50 Antibody / Translocase of inner mitochondrial membrane 50 [clone 32T72] (FY13126)

Catalog No.	Formulation	Size
FY13126	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

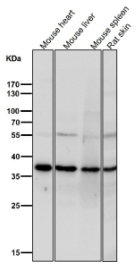
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	2-3 weeks
Species Reactivity	Human, Mouse, Rat
Format	Liquid
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	32T72
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	Q3ZCQ8
Applications	Western Blot : 1:500-1:2000
Limitations	This TIM50 antibody is available for research use only.



Western blot testing of mouse and rat samples using the TIM50 antibody at 1:1000 dilution for 1 hour at room temperature. TIM50 antibody detects a consistent band at ~36-37 kDa across multiple samples. Although the calculated mass is ~40 kDa, TIM50 undergoes mitochondrial presequence cleavage upon import, yielding a mature ~36 kDa form that predominates in western blot analyses of endogenous samples.



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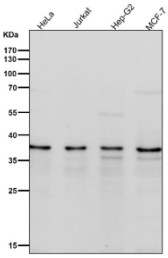

Western blot testing of human samples using the TIM50 antibody at 1:1000 dilution for 1 hour at room temperature. TIM50 antibody detects a consistent band at ~36-37 kDa across multiple samples. Although the calculated mass is ~40 kDa, TIM50 undergoes mitochondrial presequence cleavage upon import, yielding a mature ~36 kDa form that predominates in western blot analyses of endogenous samples.

Description

TIM50 antibody detects Translocase of inner mitochondrial membrane 50, encoded by the TIMM50 gene. Translocase of inner mitochondrial membrane 50, commonly called TIM50, is an essential component of the TIM23 complex that mediates the import of nuclear encoded mitochondrial proteins. The majority of mitochondrial proteins are encoded in the nucleus, synthesized in the cytoplasm, and imported across the mitochondrial membranes through specialized translocases. TIM50 antibody provides researchers with a critical reagent to study protein import, mitochondrial biogenesis, and energy metabolism.

As a receptor subunit of the TIM23 complex, TIM50 binds to presequences on precursor proteins as they enter the intermembrane space. Research using TIM50 antibody has shown that this interaction is required for recognition and transfer of proteins from the TOM complex in the outer membrane to the TIM23 channel in the inner membrane. TIM50 also acts as a gatekeeper, regulating the opening and closing of the translocation channel in response to membrane potential and precursor signals. This makes TIM50 indispensable for mitochondrial protein import.

Dysfunction of TIMM50 is linked to mitochondrial disease. Mutations in the TIMM50 gene cause combined oxidative phosphorylation deficiency, characterized by developmental delay, seizures, and lactic acidosis. Studies with TIM50 antibody have confirmed that mutations reduce protein import efficiency and disrupt mitochondrial homeostasis. Because proper protein import is essential for assembly of respiratory chain complexes, TIM50 deficiency leads to impaired energy metabolism and neuromuscular symptoms.

Beyond rare genetic syndromes, TIM50 has been implicated in cancer and neurodegeneration. Research with TIM50 antibody has demonstrated altered expression in tumors, where mitochondrial remodeling supports rapid growth. In neurons, reduced TIM50 activity contributes to mitochondrial fragmentation and synaptic dysfunction. These findings highlight its broader significance beyond classical mitochondrial import pathways.

TIM50 antibody is widely used in western blotting, immunohistochemistry, and immunofluorescence. Western blotting detects TIM50 expression in mitochondria rich tissues, immunohistochemistry localizes it to muscle and brain, and immunofluorescence confirms inner membrane localization with colocalization to mitochondrial markers. These applications make TIM50 antibody essential for studying mitochondrial protein transport.

By supplying validated TIM50 antibody reagents, NSJ Bioreagents supports research into protein import, energy metabolism, and disease. Detection of Translocase of inner mitochondrial membrane 50 enables researchers to explore how mitochondrial function is regulated at the level of protein translocation.

Application Notes

Optimal dilution of the TIM50 antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human TIM50 was used as the immunogen for the TIM50 antibody.

Storage

Store the TIM50 antibody at -20oC.