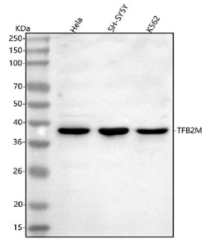
TFB2M Antibody / Transcription factor B2, mitochondrial (FY12166)

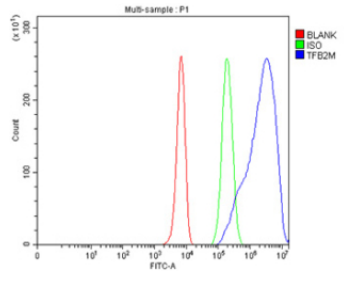
Catalog No.	Formulation	Size
FY12166	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
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	Q9H5Q4
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This TFB2M antibody is available for research use only.



Western blot analysis of TFB2M using anti-TFB2M antibody. Lane 1: human Hela whole cell lysates, Lane 2: human SH-SY5Y whole cell lysates, Lane 3: human K562 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-TFB2M 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 specific band was detected for TFB2M at approximately 38 kDa. The expected band size for TFB2M is at 45 kDa. The protein is processed to a mature form of 38-40 kDa.



Flow Cytometry analysis of K562 cells using anti-TFB2M antibody. Overlay histogram showing K562 cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-TFB2M antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

Description

TFB2M antibody detects Transcription factor B2, mitochondrial, encoded by the TFB2M gene on chromosome 1q44. TFB2M antibody is commonly used in research on mitochondrial transcription and energy metabolism. TFB2M functions as a key initiation factor for mitochondrial RNA polymerase (POLRMT), helping to promote promoter melting and start site recognition during transcription initiation. By supporting expression of mitochondrial genes encoded in mtDNA, TFB2M is essential for the assembly of oxidative phosphorylation complexes and overall cellular respiration. Expression is detected in many tissues, with particularly high levels in energy-demanding organs such as heart, brain, and skeletal muscle.

Structurally, TFB2M belongs to the rRNA adenine dimethyltransferase family but has largely lost enzymatic activity. Instead, it has adapted to act as a specialized transcription factor within mitochondria. TFB2M contains an S-adenosylmethionine (SAM)-dependent methyltransferase-like fold, which has been repurposed for interactions with POLRMT and promoter DNA. Its ability to stabilize the open complex at promoters distinguishes it from its paralog TFB1M, which primarily functions as a mitochondrial rRNA methyltransferase. This divergence highlights the specialization of mitochondrial transcription factors for different roles.

Functionally, TFB2M is indispensable for mitochondrial gene expression. Knockdown of TFB2M severely impairs transcription initiation, leading to reduced synthesis of mtDNA-encoded proteins and respiratory chain dysfunction. TFB2M is also required for proper replication primer formation, as transcription of certain promoter regions overlaps with origins of replication. By coupling transcription with replication, TFB2M ensures faithful maintenance of mitochondrial genome integrity. Researchers use TFB2M antibody to study mitochondrial transcriptional regulation, energy metabolism, and disease mechanisms involving mitochondrial dysfunction.

Clinically, defects in mitochondrial transcription, including reduced TFB2M activity, are associated with mitochondrial diseases characterized by encephalomyopathy, cardiomyopathy, and metabolic failure. Altered TFB2M expression has also been linked to cancer, where mitochondrial metabolism is frequently reprogrammed. Elevated TFB2M expression supports high respiratory activity in certain tumor cells, while reduced expression can drive metabolic remodeling toward glycolysis. These associations highlight the clinical importance of TFB2M as a mitochondrial regulator. NSJ Bioreagents supplies TFB2M antibody as a valuable tool for investigating mitochondrial transcription and its roles in health and disease.

Experimentally, TFB2M antibody is used in western blotting to detect the ~45 kDa protein, in immunofluorescence to visualize mitochondrial localization, and in immunohistochemistry to study tissue-specific expression. Immunoprecipitation with TFB2M antibody enables mapping of POLRMT transcription complexes. These applications facilitate analysis of mitochondrial transcription machinery and related disease processes.

Application Notes

Optimal dilution of the TFB2M antibody should be determined by the researcher.

Immunogen

E.coli-derived human TFB2M recombinant protein (Position: R10-K386) was used as the immunogen for the TFB2M antibody.

Storage

After reconstitution, the TFB2M antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.