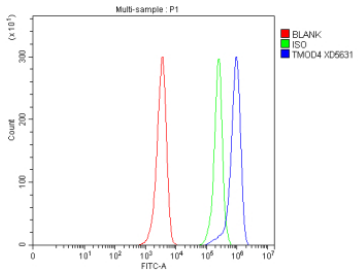
TMOD4 Antibody / Tropomodulin 4 (FY13364)

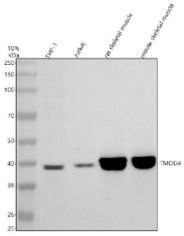
Catalog No.	Formulation	Size
FY13364	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

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	Q9NZQ9
Applications	Western Blot: 0.25-0.5ug/ml Flow cytometry: 1-3ug/million cells ELISA: 0.1-0.5ug/ml
Limitations	This TMOD4 antibody is available for research use only.



Flow Cytometry analysis of HEL cells using anti-TMOD4 antibody. Overlay histogram showing HEL 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-TMOD4 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 without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of TMOD4 using anti-TMOD4 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human THP-1 whole cell lysates, Lane 2: human Jurkat whole cell lysates, Lane 3: rat skeletal muscle tissue lysates, Lane 4: mouse skeletal muscle 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-TMOD4 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 an ECL Plus Western Blotting Substrate. A specific band was detected for TMOD4 at approximately 39 kDa. The expected molecular weight of TMOD4 is ~39 kDa.

Description

TMOD4 antibody detects Tropomodulin 4, a cytoskeletal regulatory protein encoded by the TMOD4 gene on chromosome 1q42.13. TMOD4 belongs to the tropomodulin family of actin filament capping proteins, which regulate actin filament length and stability by binding to the pointed ends of actin filaments. TMOD4 is expressed predominantly in skeletal and cardiac muscle, where it plays a key role in sarcomere organization and contractile function. It contributes to muscle fiber integrity by maintaining thin filament length during myofibril assembly and repair.

Structurally, TMOD4 is a globular protein containing actin-binding domains and tropomyosin-binding sites that allow precise regulation of actin filament capping. It belongs to the tropomodulin family, which also includes TMOD1-3, each having distinct tissue-specific expression patterns. TMOD4 interacts directly with actin and tropomyosin to prevent filament depolymerization and elongation, thereby stabilizing the sarcomeric cytoskeleton. Co-localization studies show TMOD4 localized at the pointed ends of actin filaments in muscle cells, particularly within the sarcomeric I-band region.

Functionally, TMOD4 regulates muscle development and contractile dynamics. By capping the pointed ends of actin filaments, TMOD4 controls filament length, ensuring proper alignment with myosin filaments for efficient contraction. It also stabilizes actin-tropomyosin interactions, supporting cytoskeletal integrity under mechanical stress. TMOD4 works in concert with leiomodin (LMOD) family members, which promote filament elongation, achieving balance between assembly and stabilization. In skeletal muscle, TMOD4 expression is upregulated during differentiation and regeneration.

Mutations in TMOD4 have been associated with congenital myopathies and progressive muscle weakness, reflecting the proteinÃ¯Â¿Â½s essential role in maintaining myofibril structure. Loss of TMOD4 function disrupts sarcomere organization and leads to abnormal filament length regulation. Pathway involvement includes cytoskeletal organization, muscle contraction, and actin filament regulation. During development, TMOD4 expression appears in early myotubes and persists in mature myofibers, highlighting its role in muscle maturation and stability.

The TMOD4 antibody from NSJ Bioreagents is an excellent reagent for studying actin filament dynamics, muscle structure, and myopathy-related cytoskeletal disorders.

Application Notes

Optimal dilution of the TMOD4 antibody should be determined by the researcher.

Immunogen

E.coli-derived human TMOD4 recombinant protein (Position: D17-R345) was used as the immunogen for the TMOD4 antibody.

Storage

After reconstitution, the TMOD4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at

-20oC. Avoid repeated freezing and thawing.

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