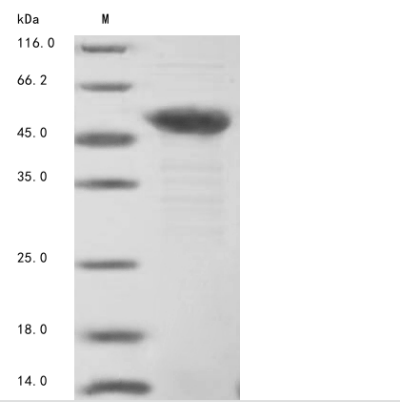
Recombinant Bovine Troponin T, fast skeletal muscle (Tnnt3)

Product Code	CSB-EP853993BO
Abbreviation	Recombinant Bovine Tnnt3 protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	Q8MKI3
Storage Buffer	Tris-based buffer,50% glycerol
Product Type	Recombinant Proteins
Immunogen Species	Bos taurus (Bovine)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	SDEEVEHVEEEYEEEEEAQEEAPPPPAEVPEVHEEVHEVHEPEEVQEEEKPR PRLTAPKIPEGEKVDFDDIQKKRQNKDLMELQALIDSHFEARKKEEEELVALKE RIEKRRAERAEQQRIRAEKERERQNRLAEEKARREEEDAKRRAEDDLKKKKAL SSMGANYSSYLAKADQKRGKKQTAREMKKKVLAERRKPLNIDHLSEDKLRDK AKELWDTLYQLETDKFEYGEKLKRQKYDITNLRSRIDQAQKHSKKAGTAPKGK VGGRWK
Research Area	Signal Transduction
Source	E.coli
Target Names	Tnnt3
Protein Names	Recommended name: Troponin T, fast skeletal muscle Short name= TnTf
Expression Region	2-271aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-tagged and C-terminal Myc-tagged
Mol. Weight	39.0 kDa
Protein Length	Full Length of Mature Protein
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Bovine Troponin T, fast skeletal muscle (Tnnt3), comes from E. coli production and appears as a full-length mature protein covering amino acids 2 to 271. The protein carries a 10xHis tag at the N-terminus and a Myc tag at the C-terminus for purification and detection purposes. This recombinant protein achieves a purity level exceeding 85%, as confirmed through SDS-PAGE analysis, which makes it suitable for various research applications.

Troponin T forms part of the troponin complex and plays a crucial role in muscle contraction regulation through its binding to tropomyosin. Fast skeletal muscle fibers contain this protein, and it appears vital for the calcium-mediated signaling pathway that controls muscle contraction and relaxation. Research into muscle physiology and related disorders likely depends on understanding how Troponin T interacts and functions.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. In Vitro Muscle Contraction Mechanism Studies

This recombinant bovine Tnnt3 can reconstitute troponin complexes with other troponin subunits (TnI and TnC) for studying calcium-dependent regulation of skeletal muscle contraction. The full-length mature protein (2-271aa) appears to retain the complete functional domains necessary for troponin complex formation and actin-myosin interaction regulation. Scientists may investigate the molecular mechanisms of fast skeletal muscle contraction by incorporating this protein into reconstituted thin filament systems. Both His and Myc tags help with protein purification and detection in complex biochemical assays.

2. Protein-Protein Interaction Analysis

The N-terminal His-tag and C-terminal Myc-tag seem well-suited for pull-down assays to identify and characterize binding partners of troponin T in fast skeletal muscle. Scientists can use the His-tag for immobilization on nickel-based resins

while the Myc-tag helps with detection and confirmation of interactions. This approach may enable systematic mapping of the troponin T interactome and investigation of calcium-dependent conformational changes that affect protein binding. The bovine origin provides what appears to be a relevant model for studying mammalian skeletal muscle protein interactions.

3. Antibody Development and Validation

This recombinant Tnnt3 works well as an antigen for generating specific antibodies against fast skeletal muscle troponin T. High purity (>85%) and the full-length nature suggest that antibodies will recognize native epitopes present under physiological conditions. The dual tagging system allows for straightforward purification and quality control during antibody production and screening processes. Scientists can use this protein to validate antibody specificity and cross-reactivity in various immunoassay applications.

4. Comparative Muscle Fiber Type Analysis

The recombinant bovine Tnnt3 may serve as a reference standard in comparative studies examining differences between fast and slow skeletal muscle fiber types. Scientists can perform biochemical assays comparing this fast skeletal muscle troponin T with slow muscle isoforms to understand fiber type-specific contractile properties. The protein enables quantitative analysis of troponin T expression levels and isoform distribution across different muscle types. This application seems particularly valuable for studying muscle development, adaptation, and disease-related changes in fiber type composition.

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