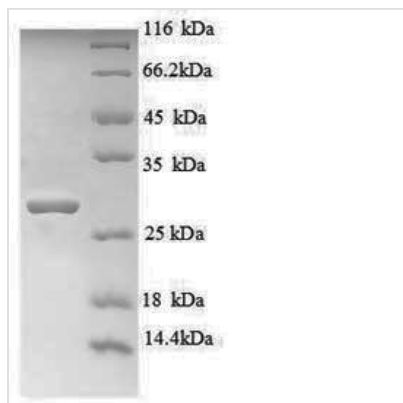


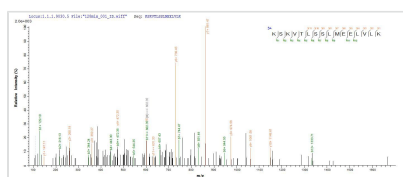


Recombinant Human Titin (TTN), partial

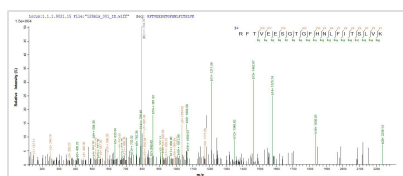
Product Code	CSB-EP025267HU1(F6)
Relevance	Key component in the assembly and functioning of vertebrate striated muscles. By providing connections at the level of individual microfilaments, it contributes to the fine balance of forces between the two halves of the sarcomere. The size and extensibility of the cross-links are the main determinants of sarcomere extensibility properties of muscle. In non-muscle cells, it is thought to play a role in chromosome condensation and chromosome segregation during mitosis. Might link the lamina network to chromatin or nuclear actin, or both during interphase.
Abbreviation	Recombinant Human TTN protein, partial
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.	Q8WZ42
Product Type	Recombinant Proteins
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	VFKCSVIGIPTPEVKWYKEYMCIEPDNIKYVISEEKGSHTLKIRNVCLSDSATYR CRAVNCVGEAICRGFLTMGDSEIFAVIAKKSKVTLSSLMEELVLKSNYTDSFFE FQVVEGPPRFIKGISDCYAPIGTAAYFQCLVRGSPRPTVYWKDGKLVQGRRF TVEESGTGFHNLFITSLVKSDEGEYRCVATNKSGMAESFAALTLT
Research Area	Cardiovascular
Source	E.coli
Target Names	TTN
Expression Region	5398-5604aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	26.5kDa
Protein Length	Partial of Isoform 6
Image	



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



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-RP150794h could indicate that this peptide derived from E.coli-expressed Homo sapiens (Human) TTN.



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Description

Recombinant Human Titin (TTN) is expressed in E. coli, covering the amino acid region 5398-5604 of Isoform 6. This protein carries an N-terminal 6xHis tag, which helps with purification and detection. SDS-PAGE analysis shows the protein appears to reach purity levels above 90%. The recombinant protein is produced under stringent conditions to keep endotoxin levels low, which should make it suitable for various research applications.

Titin plays a crucial role in muscle physiology - it's known for its involvement in muscle contraction and elasticity. As the largest protein in the human body, titin contributes to the structural integrity and function of the sarcomere, the basic unit of muscle contraction. Research on titin may be essential for understanding muscular disorders and the biomechanics of how muscles work.

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. Protein-Protein Interaction Studies

This recombinant TTN fragment (5398-5604aa) could be used to investigate specific protein interactions within the sarcomere structure. The N-terminal 6xHis tag allows for purification and immobilization in pull-down assays to



identify binding partners. Co-immunoprecipitation experiments and surface plasmon resonance studies might help characterize the binding kinetics and specificity of interactions involving this particular titin domain. Studies like these would likely contribute to understanding the molecular mechanisms of sarcomere assembly and maintenance.

2. Antibody Development and Validation

The purified recombinant protein fragment serves as what appears to be an ideal antigen for generating specific antibodies against this region of human titin. The high purity (>90%) should minimize cross-reactivity during immunization protocols. Generated antibodies can be validated through ELISA, Western blot, and immunofluorescence techniques with this recombinant protein as a positive control. This application seems particularly valuable given titin's large size - region-specific antibodies are essential for studying distinct functional domains.

3. Structural and Biophysical Characterization

The recombinant TTN fragment can be subjected to various biophysical analyses to understand the structural properties of this specific domain region. Techniques such as circular dichroism spectroscopy, dynamic light scattering, and analytical ultracentrifugation may provide insights into secondary structure, oligomerization state, and stability. The 6xHis tag makes protein purification to homogeneity easier for these sensitive analytical methods. Such characterization would likely contribute to the broader understanding of titin's modular architecture.

4. In Vitro Binding Assays

The His-tagged protein fragment can be used in enzyme-linked immunosorbent assays (ELISA) and other plate-based binding studies to screen for small molecule interactions or validate binding of other sarcomeric proteins. The tag allows for oriented immobilization on nickel-coated surfaces, which should ensure consistent protein presentation. This application could support drug discovery efforts targeting titin-related pathways. It might also help validate computational predictions of protein-ligand interactions within this specific domain region.

Shelf Life

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.