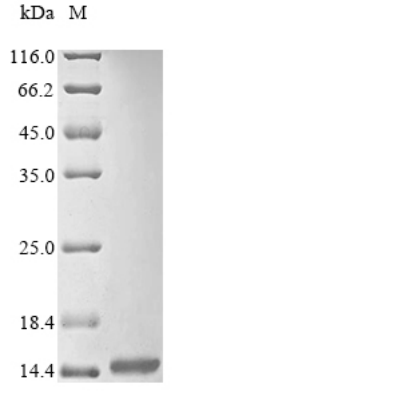
Recombinant Tityus serrulatus Beta-mammal/insect toxin Ts1

Product Code	CSB-BP323347TON
Abbreviation	Recombinant Tityus serrulatus Beta-mammal/insect toxin Ts1 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.	P15226
Product Type	Recombinant Proteins
Immunogen Species	Tityus serrulatus (Brazilian scorpion)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	KEGYLMDHEGCKLSCFIRPSGYCGRECGIKKGSSGYCAWPACYCYGLPNWV KVWDRATNKC
Research Area	Others
Source	Baculovirus
Target Names	N/A
Protein Names	Recommended name: Beta-mammal/insect toxin Ts7Alternative name(s): Tityustoxin VII Short name= Ts VII Short name= TsTX-VII Toxin II-11 Toxin III-10 Toxin T2-IV Toxin gamma Ts1
Expression Region	21-81aa
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	10.8
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 Tityus serrulatus Beta-mammal/insect toxin Ts1 is produced through a baculovirus expression system and includes the complete mature protein sequence spanning amino acids 21 to 81. The protein carries an N-terminal 10xHis-tag along with a C-terminal Myc-tag, which help streamline purification and detection processes. SDS-PAGE analysis shows the protein achieves greater than 85% purity, delivering what appears to be high-quality material for research work.

The Tityus serrulatus Beta-mammal/insect toxin Ts1 represents a well-characterized element of scorpion venom that targets ion channels with notable specificity. Researchers primarily turn to this protein when investigating ion channel modulation mechanisms, as it may provide valuable insights into neurophysiological processes and potential therapeutic targets. Its study seems particularly important in toxicology and pharmacology research.

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. Ion Channel Interaction Studies

This recombinant Ts1 toxin works well in electrophysiological assays designed to examine its binding affinity and specificity for different ion channels, especially sodium and potassium channels. The His and Myc tags make purification and detection straightforward in patch-clamp experiments or voltage-clamp studies that use heterologously expressed ion channels. Scientists can generate dose-response curves to calculate IC50 values and map out the toxin's selectivity profile across various channel subtypes. The high purity level (>85%) likely ensures consistent and reproducible results in these delicate biophysical measurements.

2. Antibody Development and Immunoassay Applications

The dual-tagged recombinant Ts1 protein makes an effective immunogen for creating specific antibodies against this scorpion toxin. Its N-terminal His tag simplifies purification for immunization protocols, while the C-terminal Myc tag offers a useful epitope for detection and validation of antibody specificity. Scientists can build ELISA-based assays using anti-His or anti-Myc antibodies as capture or detection tools to examine toxin-antibody interactions and cross-reactivity patterns.

3. Protein-Protein Interaction Screening

His-tagged Ts1 can be attached to nickel-affinity matrices for pull-down assays aimed at identifying new cellular binding partners or membrane receptors. This method allows scientists to screen cell lysates or membrane preparations to

uncover previously unknown molecular targets of this scorpion toxin. The Myc tag serves as an additional tool for Western blot detection and validation of captured protein complexes.

4. Structure-Function Relationship Studies

This recombinant toxin serves as a reference standard in comparative studies alongside mutant variants or related toxins from similar scorpion species. Scientists can conduct binding competition assays or functional studies to identify critical amino acid residues that drive toxin activity and specificity. The baculovirus system's consistent expression patterns appear to ensure reliable protein folding and post-translational modifications for dependable structure-activity comparisons.

5. Biochemical Characterization and Stability Studies

The purified recombinant Ts1 makes detailed biochemical analysis possible, including thermal stability, pH sensitivity, and proteolytic resistance studies. Scientists can track protein integrity and degradation patterns under different experimental conditions using the dual tags as monitoring tools. These studies may offer fundamental insights into the toxin's biophysical properties and help determine optimal storage and handling conditions for research applications.

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.