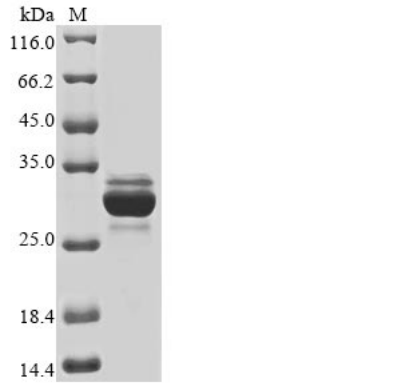
Recombinant Myrmecia pilosula M-myrmeciitoxin-Mp2b

Product Code	CSB-BP366204MMMg6
Abbreviation	Recombinant Myrmecia pilosula M-myrmeciitoxin-Mp2b 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.	P0C023
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Protein
Immunogen Species	Myrmecia pilosula (Jack jumper ant) (Australian jumper ant)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	LIGLVSKGTCVLVKTVCKKVLKQ
Research Area	Microbiology
Source	Baculovirus
Target Names	N/A
Expression Region	1-23aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal GST-tagged and C-terminal 6xHis-tagged
Mol. Weight	30.8 kDa
Protein Length	Full Length
Image	 (Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Myrmecia pilosula M-myrmeciitoxin-Mp2b is expressed using a baculovirus system and contains the full-length sequence from amino acids 1 to 23. This protein carries both N-terminal GST tags and C-terminal 6xHis tags, which helps with purification and detection processes. The preparation comes with purity greater than 85%, as determined by SDS-PAGE, and is designated for research use only.

M-myrmeciitoxin-Mp2b appears to be a key component in venom from the Myrmecia pilosula species—better known as the Australian jumper ant. Scientists study this protein primarily for its role in venom toxicity, since it seems to affect ion channels and may provide clues about how insect venom mechanisms work. Research into its structure and function could offer valuable insights into the biological activity of venom components and their possible uses in biotechnology.

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. Venom Peptide Structure-Function Studies

This recombinant M-myrmeciitoxin-Mp2b can work as a research tool for examining the structural properties and molecular characteristics of ant venom peptides. The dual GST and 6xHis tags make purification and immobilization possible for biophysical analyses such as circular dichroism spectroscopy, NMR studies, or mass spectrometry. The 23-amino acid peptide length suggests it might adopt specific secondary structures typical of bioactive venom components. Comparative studies with other myrmotoxins could potentially reveal insights into evolutionary relationships and structural diversity within ant venom peptide families.

2. Antibody Development and Immunological Research

Researchers can use the recombinant protein as an immunogen or antigen for developing specific antibodies against M-myrmeciitoxin-Mp2b. The GST tag makes purification easier and helps with presentation to immune systems in research settings, while the 6xHis tag allows for detection and quantification in immunoassays. Such antibodies would likely prove valuable as research tools for studying venom composition, investigating cross-reactivity patterns among related ant species, or developing detection methods for venom research applications.

3. Protein-Protein Interaction Studies

The dual-tagged recombinant protein can be used in pull-down assays and affinity chromatography experiments to identify potential molecular targets or

binding partners. The GST tag allows for glutathione-based immobilization. Meanwhile, the 6xHis tag provides an alternative purification and detection strategy. These interaction studies might reveal cellular targets that mediate the biological effects of the native toxin and contribute to understanding venom mechanisms at the molecular level.

4. Biochemical Assay Development and Validation

This recombinant protein works as a standardized reference material for developing and validating biochemical assays related to ant venom research. The high purity (>85%) and consistent production through baculovirus expression make it suitable for establishing quantitative assays, calibration curves, and quality control procedures. The dual tags provide multiple detection and quantification options, which enables the development of various analytical methods including ELISA-based assays and chromatographic analyses.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
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.