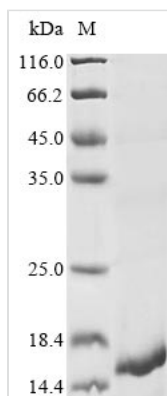




Recombinant Naja atra Cytotoxin 2

Product Code	CSB-EP365557NFG
Abbreviation	Recombinant Naja atra Cytotoxin 2 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.	P01442
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	Naja atra (Chinese cobra)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	LKCNKLVPLFYKTCAGKNLCYKMFVSNLTVPVKRGCIDVCPKNSALVKYVC CNTDRCN
Research Area	others
Source	E.coli
Target Names	N/A
Expression Region	22-81aa
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	14.2 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 *Naja atra* Cytotoxin 2 is produced using an *E. coli* expression system and contains the complete mature protein spanning amino acids 22 to 81. The engineered protein includes an N-terminal 10xHis-tag and a C-terminal Myc-tag, which makes purification and detection more straightforward. SDS-PAGE verification shows the product reaches purity levels above 85%, making it suitable for research work.

This cytotoxin comes from Chinese cobra venom and belongs to the three-finger toxin family. These proteins are particularly interesting because they can interact with cell membranes. Scientists find them valuable for studying how proteins bind to membranes and for exploring cell signaling pathways that might lead to new treatments.

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. Cytotoxin Structure-Function Studies

Researchers can use this recombinant cytotoxin 2 from *Naja atra* to examine what structural features drive snake venom cytotoxin activity. Comparing it with other cytotoxin variants may reveal important differences. The His and Myc tags make it easier to purify and detect the protein in biochemical tests that look at protein folding, stability, and shape changes.

Scientists might try circular dichroism spectroscopy, NMR studies, or X-ray crystallography to figure out this particular cytotoxin's three-dimensional structure. Since it's recombinant, researchers can perform site-directed mutagenesis experiments to pinpoint which amino acid residues are crucial for the toxin's deadly effects.

2. Membrane Interaction Assays

This cytotoxin appears useful for studying how proteins interact with membranes using artificial lipid bilayers or liposomes in controlled lab conditions. Scientists can examine binding kinetics and how the toxin creates holes in membranes using fluorescence-based tests or electrical measurements. The His-tag allows protein attachment to surfaces for surface plasmon resonance studies, which could help characterize how strongly the toxin binds to membranes.

These experiments may provide insights into the molecular mechanisms cobra cytotoxins use to interact with cell membranes.

3. Antibody Development and Immunological Studies

The dual-tagged recombinant protein works well as an antigen for creating



specific antibodies against Naja atra cytotoxin 2 in research settings. The Myc tag makes detection and measurement straightforward in ELISA-based tests during antibody screening and characterization.

Researchers can study cross-reactivity patterns with other snake venom cytotoxins and develop methods to detect specific species. The recombinant protein also works in Western blot analysis and immunofluorescence studies to confirm antibody specificity.

4. Protein-Protein Interaction Studies

Scientists can use the His-tagged cytotoxin in pull-down experiments to find potential cellular binding partners or receptors that interact with this toxin variant. The protein can be attached to nickel-affinity matrices to screen cell extracts or protein libraries for new interaction partners.

The Myc tag offers another way to detect protein complex formation in co-immunoprecipitation experiments. These interaction studies might reveal previously unknown molecular targets and pathways that cobra cytotoxins affect.

5. Comparative Toxinology Research

This recombinant cytotoxin 2 enables side-by-side studies with cytotoxins from other Naja species to understand evolutionary relationships and species-specific differences in venom makeup. Researchers can perform parallel biochemical characterizations to identify unique properties of this cytotoxin compared to cytotoxin 1 or other variants.

Standardized recombinant production allows for consistent comparative analyses across different labs. Such studies contribute to our broader understanding of snake venom evolution and the functional diversity within cytotoxin families.

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.