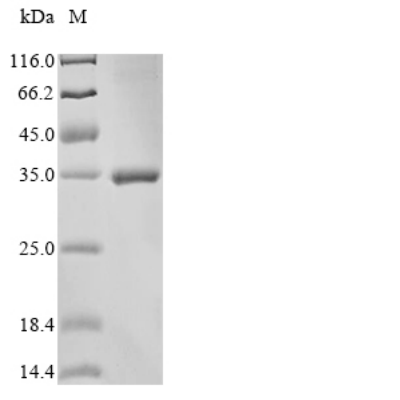
Recombinant Gloydius ussuriensis Thrombin-like enzyme calobin-1

Product Code	CSB-EP838597GGS
Abbreviation	Recombinant Gloydius ussuriensis Thrombin-like enzyme calobin-1 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.	Q91053
Storage Buffer	Tris-based buffer,50% glycerol
Product Type	Recombinant Proteins
Immunogen Species	Gloydius ussuriensis (Ussuri mamushi) (Gloydius blomhoffii ussuriensis)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	VIGGDECNINEHRFLVALYNSRSRTLFCGGTLINQEWVLTAAHCERKNFRIKLGI HSKKVPNEDEQTRVPKEKFFCLSSKNYTLWDKDIMLIRLDSPVSNSEHIAPLSL PSSPPSVGSVCRIMGWGRISPTKETYPDVPHCANINLLEYEMCRAPYPEFGLP ATSRTLCAGILEGGKDTCRGDSGGPLICNGQFQGIASWGDDPCAQPHKPAAY TKVFDHLDWIQSIIAGNTDASCPP
Research Area	Others
Source	E.coli
Target Names	N/A
Protein Names	Recommended name: Thrombin-like enzyme calobin-1 Short name= SVTLE EC= 3.4.21.- Alternative name(s): Calobin I Fibrinogen-clotting enzyme Snake venom serine protease Short name= SVSP
Expression Region	25-262aa
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	33.7 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 Gloydius ussuriensis Thrombin-like enzyme calobin-1 gets expressed in E. coli and spans the full length of the mature protein, covering amino acids 25 to 262. Scientists have engineered the protein with an N-terminal 10xHis tag and a C-terminal Myc tag to make purification and detection more straightforward. SDS-PAGE analysis shows it reaches a purity greater than 85%, which appears suitable for reliable experimental work in research settings.

Thrombin-like enzyme calobin-1 is a serine protease that comes from Gloydius ussuriensis snake venom. The enzyme mimics thrombin's activity by cleaving fibrinogen—a process that plays a crucial role in blood coagulation pathways. Researchers often turn to this enzyme when studying hemostasis and thrombosis, as it may provide insights into blood clotting mechanisms and potential therapeutic applications.

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. Biochemical Characterization and Enzyme Kinetics Studies

This recombinant thrombin-like enzyme from Gloydius ussuriensis could help researchers investigate the biochemical properties and catalytic mechanisms of snake venom enzymes. Detailed kinetic analyses using synthetic peptide substrates might determine Km, Vmax, and other kinetic parameters. The dual His and Myc tags make purification and detection easier, which enables comprehensive studies of enzyme stability, pH optima, and temperature dependence. Such characterization work would likely contribute to understanding the molecular basis of thrombin-like activity in snake venoms.

2. Comparative Proteomics and Phylogenetic Analysis

The recombinant protein serves as what appears to be a valuable reference standard for comparative studies of thrombin-like enzymes across different

snake species. Researchers can use this purified protein in mass spectrometry-based proteomics experiments to compare structural features and post-translational modifications with homologous enzymes from related species. Consistent expression in E.coli ensures reproducible protein production for large-scale comparative studies that examine evolutionary relationships among viperid thrombin-like enzymes.

3. Antibody Development and Immunological Studies

The dual-tagged recombinant calobin-1 could work as an immunogen for generating specific antibodies against Gloydius ussuriensis thrombin-like enzymes. The His-tag enables efficient purification for immunization protocols. Meanwhile, the Myc-tag provides an additional epitope for detection and validation assays. These antibodies might prove valuable as research tools for studying venom composition, developing detection methods for envenomation research, and investigating the distribution of thrombin-like enzymes in venom glands.

4. Protein-Protein Interaction Studies

The tagged recombinant protein can be used in pull-down assays and co-immunoprecipitation experiments to identify potential binding partners or substrates. The N-terminal His-tag allows for immobilization on metal affinity matrices, while the C-terminal Myc-tag enables detection and validation of interactions. Studies like these could reveal novel molecular targets and help explain how this thrombin-like enzyme works in biological systems.

5. Structure-Function Relationship Studies

This recombinant protein provides what appears to be a suitable substrate for structural biology approaches including X-ray crystallography or NMR spectroscopy studies. The high purity and consistent production in E.coli make it appropriate for generating sufficient quantities needed for structural determination. Comparative structural analysis with other thrombin-like enzymes may reveal unique features responsible for species-specific activities and contribute to understanding the molecular evolution of snake venom components.

Shelf Life

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