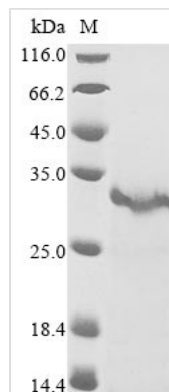




Recombinant Crotalus atrox Snake venom serine protease catroxase-2

Product Code	CSB-YP854470DYC
Abbreviation	Recombinant Crotalus atrox Snake venom serine protease catroxase-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.	Q8QHK2
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	Crotalus atrox (Western diamondback rattlesnake)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	VVGGDECNINEHRSLVAIFNSTEFFCSGTLINQEWVVTAAHCDSTNFKMKLGV HSKKVPNEDEQTRNPKEKFFCPNKKKDDVLDKDIMLIKLDSPVSNSEHIAPLSL PSSPPSVGSVCHIMGWGSITPIEKTLPDVPYCANIKLLDDAVCQPPYPELPATS RTLCAIGIPEGGKDTCCGGDSGGPLICNGQFQGIVFYGAHPCGQALKPGVYTKV FDYNDWIQSIAGNTAATCPP
Research Area	others
Source	Yeast
Target Names	N/A
Expression Region	25-258aa
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	27.2 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

The expression of the recombinant *Crotalus atrox* Snake venom serine protease catroxxase-2 involves the construction of a plasmid encoding the *Crotalus atrox* Snake venom serine protease catroxxase-2 (25-258aa) and the N-terminal 6xHis-tag. This resulting plasmid is introduced into yeast cells. Positive yeast cells are selected and cultured for protein expression. After that, cultured cells are lysed. The subsequent step includes purifying the recombinant *Crotalus atrox* Snake venom serine protease catroxxase-2 protein through affinity purification from the cell lysate and assessing the purity of the protein via SDS-PAGE. The purity of the recombinant Snake venom serine protease catroxxase-2 is greater than 85%.

Snake venom serine proteases (SVSPs) are key players in snake venom, especially in viperid snakes, and are central to how venom works. They belong to a group of enzymes called the S1 family of serine proteinases and come in various sizes, typically between 26 and 67 kilodaltons, with two distinct structural parts [1]. These enzymes mess with the body's blood clotting system in several ways, like breaking down fibrinogen and activating protein C into activated protein C [2][3][4]. One reason they're so effective is that they remain stable across a wide range of pH levels, which helps them do their job well in an envenomation [5]. Even though SVSPs look similar at the amino acid level, they can have different jobs and targets, indicating they're not all the same [6]. By breaking down fibrin(ogen), SVSPs prevent blood from clotting, making it easier for other toxins in the venom to spread throughout the victim's body [3]. Scientists are interested in SVSPs for drug development, especially for making antivenoms [1]. They're also looking into the three-dimensional structures of SVSPs, hoping to find clues for new medicines [7]. Overall, SVSPs are crucial components of snake venom, causing complex effects in envenomations and offering potential opportunities for treatments.

References:

- [1] A. Funmilola, G. Abubakar, & Z. Hassan, Molecular docking in drug discovery: a review on anti-snake venom development, *International Journal of Biochemistry Research & Review*, p. 42-49, 2020.
<https://doi.org/10.9734/ijbcr/2020/v29i330179>
- [2] T. Kang, D. Georgieva, N. Genov, M. Murakami, M. Sinha, R. Kumaret al., Enzymatic toxins from snake venom: structural characterization and mechanism of catalysis, *Febs Journal*, vol. 278, no. 23, p. 4544-4576, 2011.
<https://doi.org/10.1111/j.1742-4658.2011.08115.x>



- [3] Y. Choo, K. Lee, H. Yoon, B. Kim, M. Sohn, J. Roh et al., Dual function of a bee venom serine protease: prophenoloxidase-activating factor in arthropods and fibrin(ogen)olytic enzyme in mammals, *Plos One*, vol. 5, no. 5, p. e10393, 2010. <https://doi.org/10.1371/journal.pone.0010393>
- [4] A. Leme, B. Prezoto, E. Yamashiro, L. Bertholim, A. Tashima, C. Klitzke et al., Protease a, a unique highly glycosylated serine proteinase, is a potent, specific fibrinogenolytic agent, *Journal of Thrombosis and Haemostasis*, vol. 6, no. 8, p. 1363-1372, 2008. <https://doi.org/10.1111/j.1538-7836.2008.02995.x>
- [5] P. Sukkapan, Y. Jia, I. Nuchprayoon, & J. Perez, Phylogenetic analysis of serine proteases from russell's viper (*daboia russelli siamensis*) and agkistrodon piscivorus leucostoma venom, *Toxicon*, vol. 58, no. 2, p. 168-178, 2011. <https://doi.org/10.1016/j.toxicon.2011.05.014>
- [6] S. Vaiyapuri, S. Wagstaff, R. Harrison, J. Gibbins, & E. Hutchinson, Evolutionary analysis of novel serine proteases in the venom gland transcriptome of bitis gabonica rhinoceros, *Plos One*, vol. 6, no. 6, p. e21532, 2011. <https://doi.org/10.1371/journal.pone.0021532>
- [7] Z. Zhu, Z. Liang, T. Zhang, Z. Zhu, W. Xu, M. Tenget et al., Crystal structures and amidolytic activities of two glycosylated snake venom serine proteinases, *Journal of Biological Chemistry*, vol. 280, no. 11, p. 10524-10529, 2005. <https://doi.org/10.1074/jbc.m412900200>

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.