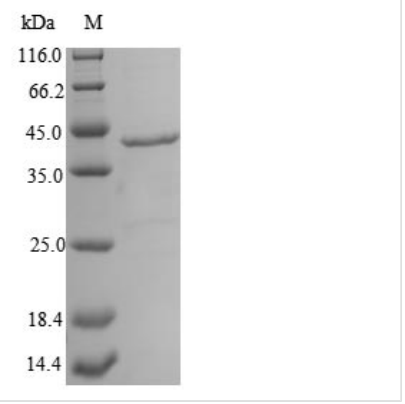
Recombinant Carcinoscorpius rotundicauda Limulus clotting factor C, partial

Product Code	CSB-EP638870CDQ
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.	Q26422
Product Type	Recombinant Protein
Immunogen Species	Carcinoscorpius rotundicauda (Mangrove horseshoe crab) (Limulus rotundicauda)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	SSQPSTVDLASKVKLPEGHYRVGSRAIYTCESRYYELLGSQGRRCDSNGNWS GRPASCIPVCGRSDSPRSPFIWNGNSTEIGQWPWQAGISRWLADHNMWFLQ CGGSLLNEKWIVTAAHCVTYSATAEIIDPNQFKMYLGKYYRDDSRDDDYVQVR EALEIHVNPNYDPGNLNFDIALIQLKTPVTLTTRVQPICLPTDITTREHLKEGTLA VVTGWGLNENNTYSETIQQAVLPVVAASTCEEGYKEADLPLTVTENMFCAGY KKGRYDACSGDSGGPLVFADDSRTERRWVLEGIVSWGSPSGCGKANQYGG FTKVNVFLSWIRQFI
Lead Time	3-7 business days
Research Area	Others
Source	E.coli
Protein Names	Recommended name: Limulus clotting factor C Short name= FC EC= 3.4.21.84 Cleaved into the following 4 chains: 1. Limulus clotting factor C heavy chain 2. Limulus clotting factor C light chain 3. Limulus clotting factor C chai
Expression Region	691-1019aa
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	42.2 kDa
Protein Description	Partial
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

The production of recombinant Carcinoscorpius rotundicauda Limulus clotting factor C in E. coli starts with the co-insertion of the gene of interest (691-1019aa of Carcinoscorpius rotundicauda Limulus clotting factor C) into an expression vector with an N-terminal 6xHis-tag gene, followed by transformation into E. coli cells. These cells are grown under conditions that induce protein expression. After sufficient growth, cells are lysed to release the recombinant protein. Purification is carried out using the affinity chromatography technique. The purity of the protein is confirmed with SDS-PAGE, reaching up to 85%.

Carcinoscorpius rotundicauda Limulus clotting factor C, identified as a serine protease zymogen, plays a central role in initiating a cascade of pathways that lead to the coagulation of Gram-negative bacteria [1]. Studies have shown that factor C of Carcinoscorpius rotundicauda is both immunoreactive and functional, indicating its significance in the immune response of the horseshoe crab [2].

Factor C from Carcinoscorpius rotundicauda has been extensively studied for its ability to bind endotoxins and induce bacteriostasis, showcasing its importance in the defense mechanisms of the horseshoe crab [3]. The interaction of factor C with lipopolysaccharides (LPS) triggers a series of events leading to the activation of clotting enzymes and the subsequent clotting process, essential for encapsulating and eliminating bacteria [4].

References:
[1] M. Khan, T. Muthamilselvan, H. Kang, & I. Hwang, Plant produced endotoxin binding recombinant proteins effectively remove endotoxins from protein samples, Scientific Reports, vol. 12, no. 1, 2022. https://doi.org/10.1038/s41598-022-20776-6
[2] A. Pui, B. Ho, & J. Ding, Yeast recombinant factor c from horseshoe crab binds endotoxin and causes bacteriostasis, Journal of Endotoxin Research, vol. 4, no. 6, p. 391-400, 1997. https://doi.org/10.1177/096805199700400602
[3] J. Ding, C. Chai, A. Pui, & B. Ho, Expression of full length and deletion homologues of carcinoscorpius rotundicauda factor c in saccharomyces cerevisiae: immunoreactivity and endotoxin binding, Journal of Endotoxin Research, vol. 4, no. 1, p. 33-43, 1997. https://doi.org/10.1177/096805199700400105
[4] S. Srimal, T. Miyata, S. Kawabata, T. Miyata, & S. Iwanaga, The complete amino acid sequence of coagulogen isolated from southeast asian horseshoe crab, carcinoscorpius rotundicauda1, The Journal of Biochemistry, vol. 98, no. 2,

p. 305-318, 1985. https://doi.org/10.1093/oxfordjournals.jbchem.a135283

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.