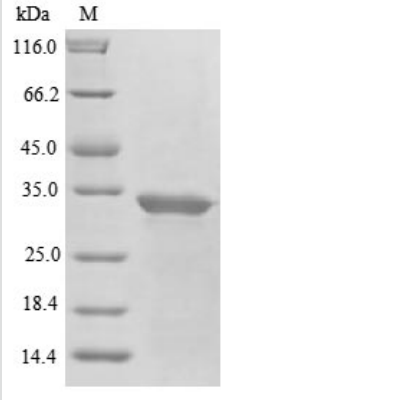
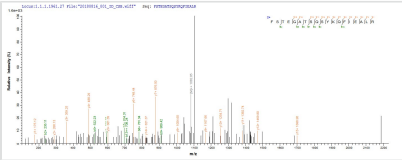
Recombinant Abrus precatorius Abrin-a, partial

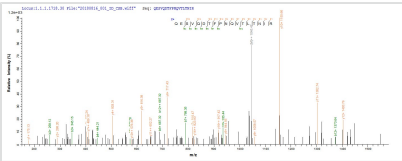
Product Code	CSB-EP319970AAC
Relevance	The A chain is responsible for inhibiting protein synthesis through the catalytic inactivation of 60S ribosomal subunits by removing adenine from position 4,324 of 28S rRNA. Abrin-a is more toxic than ricin. The B chain is a galactose-specific lectin that facilitates the binding of abrin to the cell membrane that precedes endocytosis.
Abbreviation	Recombinant Abrus precatorius Abrin-a protein, partial
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.	P11140
Product Type	Recombinant Protein
Immunogen Species	Abrus precatorius (Indian licorice) (Glycine abrus)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	QDRPIKFSTEGATSQSYKQFIEALRERLRGGLIHDIPVLPDPTTLQERNRYITVE LSNSDTESIEVGIDVTNAYVVAYRAGTQSYFLRDAPSSASDYLFTGTDQHSLPF YGTYGDLERWAHQSRQQIPLGLQALTHGISFFRSGGNDNEEKARTLIVIIQMVA EAARFRYISNRVRVSIQTGTAFQPDAAMISLENNWDNLSRGVQESVQDTFPNQ VTLTNIRNEPVIVDSLSHPTVAVLALMLFVCNPPN
Research Area	Others
Source	E.coli
Protein Names	rRNA N-glycosidase
Expression Region	1-251aa
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
Mol. Weight	33.6 kDa
Protein Length	Partial
Image	



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



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP319970AAC could indicate that this peptide derived from E.coli-expressed Abrus precatorius (Indian licorice) (Glycine abrus) N/A.



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Description

Recombinant Abrus precatorius Abrin-a generation initiates with isolating the target gene corresponding to the Abrus precatorius Abrin-a (1-251aa). This gene is co-cloned into an expression vector with an N-terminal 10xHis-tag gene and introduced into E. coli cells via transformation. The positive E. coli cells are induced to express the recombinant protein, which is harvested from the cell lysate. The protein is purified using affinity chromatography. Its purity is over 85% as determined by SDS-PAGE.

Abrin-a is a protein toxin derived from the seeds of the plant Abrus precatorius, commonly known as jequirity beans or rosary peas. This toxin is a type II ribosome-inactivating protein that inhibits protein synthesis in eukaryotic cells, leading to cell death [1][2][3][4][5][6][7]. Structurally and functionally, abrin-a is similar to ricin, a protein toxin found in castor beans [8]. It acts as a ribosome inhibitory protein, with an enzymatic A chain linked to a B chain, which has specificity to terminal galactose [3]. Abrin-a has gained attention due to its potential malevolent use and is of concern as a biothreat agent [9]. The toxin triggers apoptosis in cells by inhibiting protein synthesis, leading to the unfolded protein response [4]. Additionally, abrin-a has been the focus of research for developing detection methods, quantification techniques, and even post-exposure protection strategies against its toxicity [5][10].

References:
[1] B. Hovde, H. Daligault, E. Hanschen, Y. Kunde, M. Johnson, S. Starkenburget al., Detection of abrin-like and prepropulchellin-like toxin genes and transcripts using whole genome sequencing and full-length transcript sequencing of abrus precatorius, Toxins, vol. 11, no. 12, p. 691, 2019.

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[4] R. Mishra, M. Kumar, & A. Karande, Inhibition of protein synthesis leading to unfolded protein response is the major event in abrin-mediated apoptosis, Molecular and Cellular Biochemistry, vol. 403, no. 1-2, p. 255-265, 2015. https://doi.org/10.1007/s11010-015-2355-9
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[6] J. Wooten, C. Pittman, T. Blake, J. Thomas, J. Devlin, R. Higgersonet al., A case of abrin toxin poisoning, confirmed via quantitation of l-abrine (n-methyl-l-tryptophan) biomarker, Journal of Medical Toxicology, vol. 10, no. 4, p. 392-394, 2014. https://doi.org/10.1007/s13181-013-0377-9
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[8] M. Kumar, P. Dinkar, H. Abbas, & E. Chaudhary, Fatal curiosity: a case of suicidal attempt by abrus seeds consumption through online research, Cureus, 2023. https://doi.org/10.7759/cureus.38458
[9] A. Dodge, K. Carrasquillo, L. Rivera, X. Lei, L. Wackett, & M. Sadowsky, Rapid method using two microbial enzymes for detection of l-abrine in food as a marker for the toxic protein abrin, Applied and Environmental Microbiology, vol. 81, no. 5, p. 1610-1615, 2015. https://doi.org/10.1128/aem.03492-14
[10] A. Mechaly, R. Alcalay, T. Noy-Porat, E. Epstein, Y. Gal, & O. Mazor, Novel phage display-derived anti-abrin antibodies confer post-exposure protection against abrin intoxication, Toxins, vol. 10, no. 2, p. 80, 2018. https://doi.org/10.3390/toxins10020080

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.