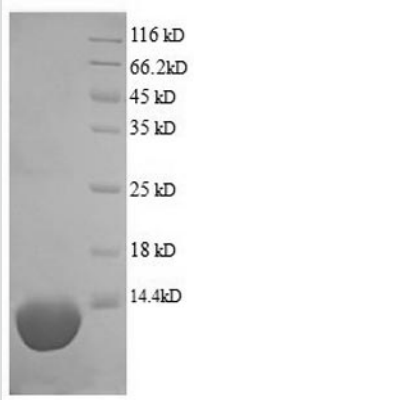
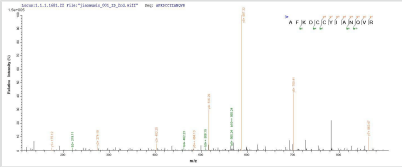
Recombinant Pig Complement C5a anaphylatoxin (C5)

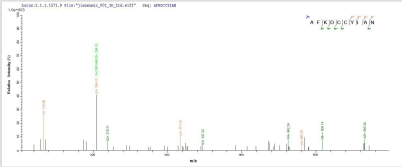
Product Code	CSB-YP003995PI
Relevance	Derived from proteolytic degradation of complent C5, C5 anaphylatoxin is a mediator of local inflammatory process. Binding to the receptor C5AR1 induces a variety of responses including intracellular calcium release, contraction of smooth muscle, increased vascular permeability, and histamine release from mast cells and basophilic leukocytes. C5a is also a potent chokine which stimulates the locomotion of polymorphonuclear leukocytes and directs their migration toward sites of inflammation.
Abbreviation	Recombinant Pig Complement C5a anaphylatoxin 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.	P01032
Product Type	Recombinant Protein
Immunogen Species	Sus scrofa (Pig)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MLQKKIEEEAAKYKYAMLKKCCYDGAYRNDDETCEERAARIKIGPKCVKAFKD CCYIANQVRAEQSHKNIQLGR
Research Area	Others
Source	Yeast
Target Names	C5
Protein Names	Recommended name: Complement C5a anaphylatoxin
Expression Region	1-74aa
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	10.6kDa
Protein Length	Full Length
Image	



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



Based on the SEQUEST from database of Yeast host and target protein, the LC-MS/MS Analysis result of CSB-YP003995PI could indicate that this peptide derived from Yeast-expressed Sus scrofa (Pig) C5.



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Description

In the process of producing the recombinant pig Complement C5a anaphylatoxin (C5), yeast cells are transfected with a DNA expression vector containing the gene for the C5 protein (1-74aa) along with the N-terminal 6xHis-tag gene. Subsequent culturing induces the expression of the intended protein. The recombinant pig C5 protein is then collected and purified from the cell lysate through affinity purification, displaying a purity exceeding 90%, as verified by SDS-PAGE.

Complement C5a anaphylatoxin is a crucial protein involved in the inflammatory response and immune system regulation. It is generated by the cleavage of complement component C5. C5a plays diverse roles in various biological functions, extending beyond its classical role as an anaphylatoxin. It has been shown to have adverse effects on survival in sepsis and is implicated in critical illness-induced organ dysfunction [1][2][3][4]. Additionally, C5a has been demonstrated to exacerbate anaphylaxis and amplify mast cell activities, further underlining its significant role in immune responses [5][6]. C5a exerts neuroprotective effects and may have multiple effects relevant to neuronal survival [7].

Research has shown that C5a functions as a master switch for the pH balance in neutrophils, exerting fundamental immune metabolic effects and contributing to the overwhelming inflammatory response in sepsis [8]. Evidence has revealed that C5 blockade synergistically protects against lung cancer growth and metastasis [9]. Moreover, C5a exerts its role by binding to its receptor, CD88, after central nervous system injury, highlighting its involvement in the response to spinal cord injuries [10].

References:
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[9] D. Ajona, S. Ortiz?Espinosa, H. Moreno, T. Lozano, M. Pajares, J. Agorretaet al., A combined pd-1/c5a blockade synergistically protects against lung cancer growth and metastasis, Cancer Discovery, vol. 7, no. 7, p. 694-703, 2017. https://doi.org/10.1158/2159-8290.cd-16-1184
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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.