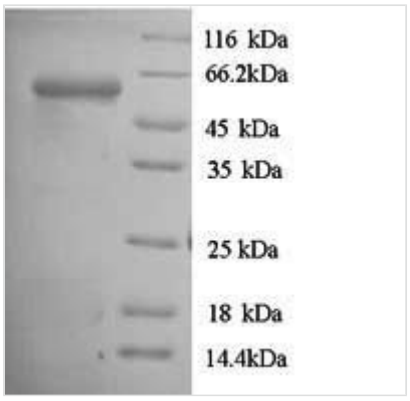
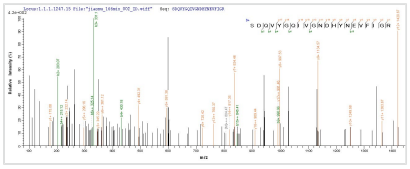
Recombinant Porphyromonas gingivalis Gingipain R1 (rgpA), partial

Product Code	CSB-YP338957PQP
Relevance	Thiol protease which is believed to participate in intracellular degradation and turnover of proteins. Its proteolytic activity is a major factor in both periodontal tissue destruction and in bacterial host defense mechanisms. Activates complent C3 and C5.
Abbreviation	Recombinant Porphyromonas gingivalis rgpA 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.	P28784
Product Type	Recombinant Proteins
Immunogen Species	Porphyromonas gingivalis
Purity	Greater than 90% as determined by SDS-PAGE. Greater than 90% as determined by SEC-HPLC.
Sequence	YTPVEEKQNGRMIVIVAKKYEGDIKDFVDWKNQRGLRTEVKVAEDIASPVTAN AIQQFVKQEYEKEGNDLTYVLLVGDHKDIPAKITPGIKSDQVYGQIVGNDHYNE VFIGRFSCESKEDLKTQIDRTIHYERNITTEDKWLGQALCIASAEGGPSADNGE SDIQHENVIANLLTQYGYTKIIKCYDPGVTPKNIIDAFNGGISLVNYTGHGSETA WGTSHFGTTHVKQLTNSNQLPFIFDVACVNGDFLFSMPCFAEALMRAQKDGK PTGTVAIIASTINQSWASPMRGQDEMNEILCEKHPNNIKRTFGGVTMNGMFAM VEKYKKDGEKMLDTWTVFGDPSLLVRTLVPTKMQVTAPAQINLTDASVNVSCD YNGAIATISANGKMFGSAVVENGTATINLTGLTNESTLTLTVVGYNKETVIKTINT NGEPNPYQPVSNLTATTQGQKVTLKWDAPSTKTNATTNTARSVDGIRELVLLS VSDAPELLRS
Research Area	Others
Source	Yeast
Target Names	rgpA
Protein Names	Recommended name: Gingipain R1 EC= 3.4.22.37Alternative name(s): Arg-gingipain Gingipain 1 RGP-1
Expression Region	228-720aa
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	56.0kDa
Protein Length	Partial

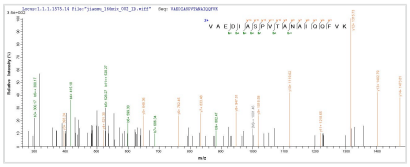
Image



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



Based on the SEQUEST from database of Yeast host and target protein, the LC-MS/MS Analysis result of CSB-YP338957PQP could indicate that this peptide derived from Yeast-expressed Porphyromonas gingivalis rgpA.



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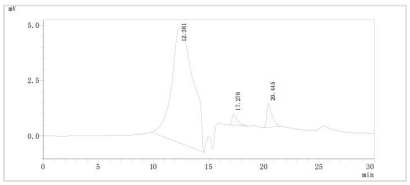

The purity of rgpA was greater than 90% as determined by SEC-HPLC

Description

To generate the recombinant Porphyromonas gingivalis Gingipain R1 (RgpA), the gene coding for the RgpA protein (228-720aa) is first isolated and inserted into a plasmid vector along with the N-terminal 6xHis-tag gene. This vector is transfected into yeast cells. The yeast cells are cultured in bioreactors, where they express the RgpA protein. After sufficient growth, the cells are lysed, and the RgpA protein is purified using affinity chromatography. The purified RgpA protein undergoes quality control tests to ensure its purity. Its purity is over 90% as measured by SDS-PAGE.

Gingipain R1 (RgpA) is a 45-kDa Arg-specific cysteine proteinase of the periodontal pathogen Porphyromonas gingivalis. RgpA is a member of the gingipain family, which includes three arginine/lysine-specific proteases: RgpA, RgpB, and Kgp. These gingipains bind and cleave various host proteins, contributing to tissue destruction in periodontal diseases, which is crucial for the pathogenicity of P. gingivalis [1] [2] [3]. It is part of a polyprotein structure containing adhesin domains that aid in the bacterium's virulence [4]. Studies have shown that RgpA and RgpB are involved in the pathogen's invasion of host tissues and cause alveolar bone loss, a hallmark of periodontitis [5][6].

Furthermore, RgpA and RgpB have been shown to disrupt host defense mechanisms and contribute to tissue destruction in periodontal diseases [7]. The RgpA-Kgp proteinase-adhesin complex is crucial for the pathogen's ability to bind to and degrade host proteins, leading to periodontal bone loss [8][6]. Additionally, RgpA has been targeted in vaccine development studies as a potential strategy to induce protective immunity against P. gingivalis infections [7].

References:
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Shelf Life

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