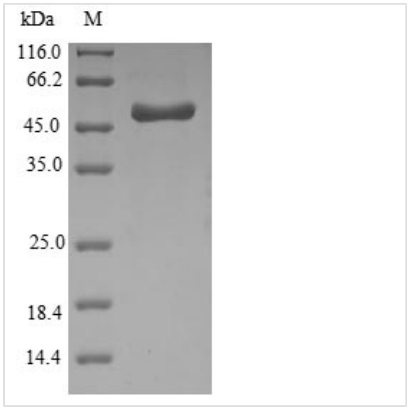
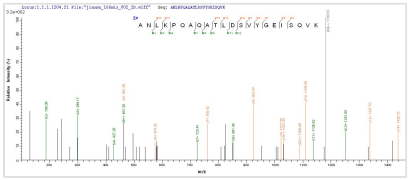
Recombinant Haemophilus influenzae Outer membrane protein P5 (ompA)

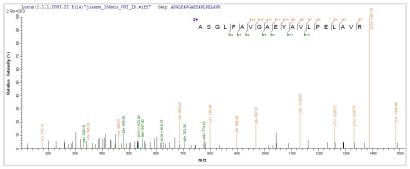
Product Code	CSB-EP332793HSZ
Relevance	Acts as a fimbriae subunit.
Abbreviation	Recombinant Haemophilus influenzae ompA protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life 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.	P45996
Alias	Fimbrin
Product Type	Recombinant Protein
Immunogen Species	Haemophilus influenzae
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	APQENTFYAGVKAGQGSFHDGINNNGAIKKGLSSSNYGYRRNTFTYGVFGGY QILNQDNFGLAAELGYDDFGRAKLREAGKPKAKHTNHGAYLSLKGSYEVLDGL DVYGKAGVALVRSDYKFYEDANGTRDHKKGRHTARASGLFAVGAEYAVLPEL AVRLEYQWLTRVGKYRPQDKPNTAINYNPWIGCINAGISYRFGQGEAPVVAAP EMVSKTFSLNSDVTFAFGKANLKPQAQATLDSVYGEISQVKSRKVAVAGYTNR IGSDAFNVKLSQERADSVANYFVAKGVAADAISATGYGEANPVTGATCDQVKG RKALIACLAPDRRVEIAVNGTK
Research Area	Microbiology
Source	E.coli
Target Names	ompA
Protein Names	Recommended name: Outer membrane protein P5 Short name= OMP P5 Alternative name(s): Fimbrin
Expression Region	22-359aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-SUMO-tagged and C-terminal Myc-tagged
Mol. Weight	56.4kDa
Protein Length	Full Length of Mature Protein
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-EP332793HSZ could indicate that this peptide derived from E.coli-expressed Haemophilus influenzae ompA.



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Description

The process of producing recombinant Haemophilus influenzae Outer membrane protein P5 (ompA) starts with synthesizing the target gene, which covers the full length of the mature ompA protein. This gene is fused with an N-terminal 10xHis-SUMO-tag and C-terminal Myc-tag gene and then introduced into an expression vector. The recombinant vector is transformed into E. coli cells, which are induced to express the recombinant ompA protein. These cells are lysed to release the expressed protein. The collected recombinant ompA protein is purified through affinity chromatography. Its purity reaches up to 90% as determined by SDS-PAGE.

Haemophilus influenzae Outer membrane protein P5 (OMPP5) is a significant component of non-typeable Haemophilus influenzae (NTHi) that plays various crucial roles in the pathogenesis and biology of this bacterium. OMPP5 is associated with inorganic polyphosphate and polyhydroxybutyrate, forming large pores in lipid bilayers [1]. It acts as acoli n adhesin essential for the colonization of the chinchilla nasopharynx and infection of the middle ear [2]. The protein exhibits heat modifiability properties similar to major Escherichia outer membrane proteins [3]. OMP P5 is a member of the OmpA family and is a major structural protein in many gram-negative bacteria [4].

Furthermore, OMPP5 has been investigated as a potential immunogen against bacterial otitis media, indicating its importance in vaccine development and immune response [5]. The protein's role as an adhesin that binds to respiratory mucin highlights its significance in NTHi pathogenesis [6].

References:

[1] E. Zakharian and R. Reusch, Haemophilus influenzae outer membrane protein p5 is associated with inorganic polyphosphate and polyhydroxybutyrate, Biophysical Journal, vol. 92, no. 2, p. 588-593, 2007. https://doi.org/10.1529/biophysj.106.095273
[2] J. Bookwalter, J. Jurcisek, S. Gray-Owen, S. Fernández, G. McGillivary, & L. Bakaletz, A carcinoembryonic antigen-related cell adhesion molecule 1 homologue plays a pivotal role in nontypeable haemophilus influenzae colonization of the chinchilla nasopharynx via the outer membrane protein p5-homologous adhesin, Infection and Immunity, vol. 76, no. 1, p. 48-55, 2008. https://doi.org/10.1128/iai.00980-07
[3] R. Munson, S. Grass, & R. West, Molecular cloning and sequence of the gene for outer membrane protein p5 of haemophilus influenzae, Infection and Immunity, vol. 61, no. 9, p. 4017-4020, 1993. https://doi.org/10.1128/iai.61.9.4017-4020.1993
[4] M. Mullins, K. Register, D. Bayles, C. Loving, T. Nicholson, S. Brockmeieret al., Characterization and comparative analysis of the genes encodinghaemophilus parasuisouter membrane proteins p2 and p5, Journal of Bacteriology, vol. 191, no. 19, p. 5988-6002, 2009. https://doi.org/10.1128/jb.00469-09
[5] J. Kyd, A. Cripps, L. Novotny, & L. Bakaletz, Efficacy of the 26-kilodalton outer membrane protein and two p5 fimbrin-derived immunogens to induce clearance of nontypeable haemophilus influenzae from the rat middle ear and lungs as well as from the chinchilla middle ear and nasopharynx, Infection and Immunity, vol. 71, no. 8, p. 4691-4699, 2003. https://doi.org/10.1128/iai.71.8.4691-4699.2003
[6] R. Hobb, H. Tseng, J. Downes, T. Terry, P. Blackall, M. Takagiet al., Molecular analysis of a haemagglutinin of haemophilus paragallinarum a athe genbank accession numbers for the sequences determined in this work are af491817–af491827., Microbiology, vol. 148, no. 7, p. 2171-2179, 2002. https://doi.org/10.1099/00221287-148-7-2171

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.
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