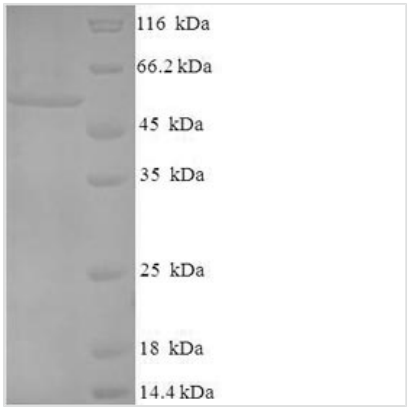
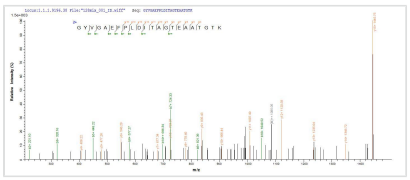
Recombinant Chlamydia trachomatis Major outer membrane porin, serovar A (ompA)

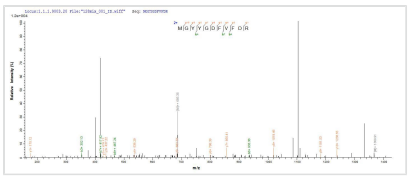
Product Code	CSB-EP328425DSA
Relevance	In elentary bodies (EBs, the infectious stage, which is able to survive outside the host cell) provides the structural integrity of the outer envelope through disulfide cross-links with the small cysteine-rich protein and the large cysteine-rich periplasmic protein. It has been described in publications as the Sarkosyl-insoluble COMC (Chlamydia outer mbrane complex), and serves as the functional equivalent of peptidoglycan .Permits diffusion of specific solutes through the outer mbrane.
Abbreviation	Recombinant Chlamydia trachomatis 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.	P23732
Product Type	Recombinant Protein
Immunogen Species	Chlamydia trachomatis
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	LPVGNPAEPSLMIDGILWEGFGGDPCDPCTTWCDAISMRMGYYGDFVFDRVL KTDVNKEFQMGAAPTTRDVAGLEKDPVVNVARPNPAYGKHMQDAEMFTNAA YMALNIWDRFDVFCTLGATTGYLKGNSASFNLVGLFGTKTQSSGFDTANIVPN TALNQAVVELYTDTTFAWSVGARAALWECGCATLGASFQYAQSKPKVEELNV LCNASEFTINKPKGYVGAEFPLDITAGTEAATGTKDASIDYHEWQASLALSYRL NMFTPYIGVKWSRVSFDADTIRIAQPKLAKPVLDTTTLNPTIAGKGTVVSSAEN ELADTMQIVSLQLNKMKSRKSCGIAVGTTIVDADKYAVTVETRLIDERAAHVNA QFRF
Research Area	Others
Source	E.coli
Target Names	ompA
Expression Region	23-396aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged
Mol. Weight	56.6kDa
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-EP328425DSA could indicate that this peptide derived from E.coli-expressed Chlamydia trachomatis ompA.



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Description

This recombinant Chlamydia trachomatis Major outer membrane porin (ompA), serovar A, is expressed in E. coli and contains the full length of the mature protein (23-396aa). It comes with an N-terminal 6xHis-SUMO tag that helps with purification and detection. SDS-PAGE analysis confirms the product shows purity levels above 90%, which appears to provide reliable performance for research applications.

The Major outer membrane porin of Chlamydia trachomatis, often called ompA, seems to play an important role in bacterial outer membrane structure. This protein is involved in maintaining membrane integrity and permeability, and it also functions in immune responses during infection. Given its significance in cellular interactions and potential as a vaccine target, ompA has become a key focus in microbial pathogenesis research.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Antibody Development and Characterization Studies

This recombinant ompA protein can work as an immunogen for creating monoclonal or polyclonal antibodies specific to Chlamydia trachomatis serovar

A. The N-terminal His-SUMO tag makes purification and immobilization easier for antibody screening assays. Scientists can apply this protein in ELISA-based assays to study antibody specificity, affinity, and cross-reactivity with other chlamydial serovars. The high purity (>90%) should help deliver consistent and reproducible results in immunological assays.

2. Protein-Protein Interaction Studies

The His-SUMO tagged ompA works well in pull-down assays to find host cell proteins that interact with the major outer membrane porin. The His tag allows immobilization on nickel-affinity matrices, while the SUMO tag offers additional purification options and may help stabilize the protein. This method can help researchers understand molecular mechanisms of chlamydial pathogenesis and host-pathogen interactions in controlled laboratory systems.

3. Structural and Biochemical Characterization

This recombinant protein offers a useful tool for studying the structural properties and biochemical features of Chlamydia trachomatis ompA. Researchers can apply techniques like circular dichroism spectroscopy, dynamic light scattering, and analytical ultracentrifugation. Since the mature protein region (23-396aa) is expressed in E. coli, it allows for isotopic labeling studies and NMR analysis. Scientists can examine protein folding, stability, and conformational changes under different buffer conditions and temperatures.

4. Vaccine Research and Immunogenicity Studies

The recombinant ompA protein can be used in preclinical vaccine development studies to measure immune responses in animal models. Researchers might evaluate the immunogenicity of various adjuvant formulations and delivery methods using this purified antigen. The protein serves as a standardized antigen for comparing immune responses across different experimental conditions and for fine-tuning vaccine formulations in laboratory settings.

5. Serovar-Specific Research Applications

This serovar A-specific ompA protein makes comparative studies possible with ompA proteins from other Chlamydia trachomatis serovars. Researchers can identify sequence and structural differences that may contribute to serovar specificity. Scientists can use this protein in competitive binding assays and cross-reactivity studies to better understand antigenic variation among different chlamydial strains. The standardized recombinant format should allow for consistent comparative analyses across multiple research laboratories.

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.