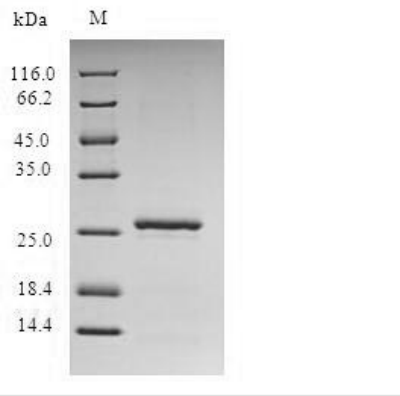
Recombinant Staphylococcus aureus ESAT-6 secretion system extracellular protein A (esxA)

Product Code	CSB-EP763968SKW
Relevance	Virulence factor that is important for the establishment of infection in the host.
Abbreviation	Recombinant Staphylococcus aureus esxA 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.	Q6GCJ0
Product Type	Recombinant Protein
Immunogen Species	Staphylococcus aureus (strain MSSA476)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MAMIKMSPEEIRAKSQSYGQGSDQIRQILSDLTRAQGEIAANWEGQAFSRFEE QFQQLSPKVEKFAQLLEEIKQQLNSTADAVQEQDQQLSNNFGLQ
Research Area	Others
Source	E.coli
Target Names	esxA
Protein Names	Recommended name: Virulence factor esxA
Expression Region	1-97aa
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	27.0kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Staphylococcus aureus ESAT-6 secretion system extracellular protein A (esxA) is produced in E.coli and contains the complete sequence from amino acids 1 to 97. The protein features an N-terminal 6xHis-SUMO tag, which aids in purification and detection processes. SDS-PAGE analysis indicates a purity level exceeding 90%, making this product suitable for research applications. Low endotoxin levels during preparation appear to ensure compatibility with most experimental setups.

The ESAT-6 secretion system extracellular protein A (esxA) represents a key component of the Staphylococcus aureus secretion machinery. This protein likely plays a significant role in transporting and secreting proteins across the bacterial membrane—a process that seems essential for bacterial virulence and survival. Research into this protein may prove vital for understanding bacterial pathogenicity and could contribute to developing new antibacterial strategies.

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 Immunological Studies

This recombinant esxA protein appears well-suited as an immunogen for generating polyclonal or monoclonal antibodies specific to Staphylococcus aureus ESAT-6 secretion system components. The N-terminal 6xHis-SUMO tag makes purification and immobilization straightforward for antibody screening assays. Such antibodies might serve as valuable research tools for studying esxA expression, localization, and secretion in S. aureus cultures. The >90% purity level should be sufficient for immunization protocols and subsequent antibody characterization experiments.

2. Protein-Protein Interaction Studies

Researchers can use the recombinant esxA protein in pull-down assays to identify potential binding partners within the ESAT-6 secretion system or other S. aureus proteins. The N-terminal His-tag allows for immobilization on nickel-affinity resins, which may help capture interacting proteins from S. aureus lysates. Co-immunoprecipitation experiments using anti-His antibodies could also be performed to study esxA interactions in reconstituted protein systems. These approaches might contribute to understanding the molecular mechanisms behind the ESAT-6 secretion pathway in staphylococci.

3. Biochemical Characterization and Stability Studies

This purified esxA protein can undergo various biochemical analyses including size exclusion chromatography, dynamic light scattering, and thermal stability assays to characterize its oligomerization state and biophysical properties.

Researchers might use the protein to determine optimal storage conditions, pH stability ranges, and temperature tolerance for future experimental work. Proteolytic sensitivity assays could also help map potential cleavage sites and reveal protein stability under different buffer conditions.

4. ELISA-Based Detection System Development

The recombinant esxA protein may serve as a standard or coating antigen for developing enzyme-linked immunosorbent assays (ELISA) to detect esxA in S. aureus culture supernatants or cell lysates. The His-SUMO tag permits oriented immobilization on ELISA plates using anti-His antibodies, potentially improving assay sensitivity and reproducibility. This application could prove valuable for research studying esxA secretion kinetics, expression regulation, or comparative analysis across different S. aureus strains.

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.