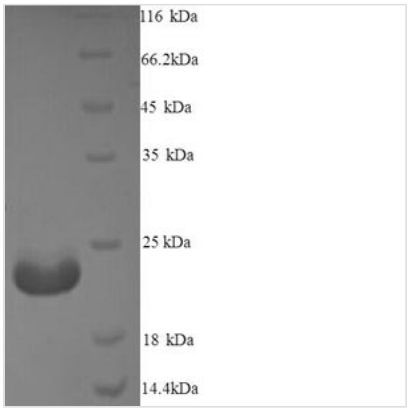
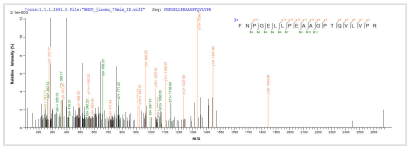
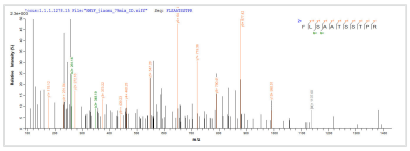
Recombinant Mycobacterium tuberculosis Immunogenic protein MPT64 (mpt64)

Product Code	CSB-YP358713FSG
Abbreviation	Recombinant Mycobacterium tuberculosis mpt64 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.	P9WIN9
Product Type	Recombinant Proteins
Immunogen Species	Mycobacterium tuberculosis (strain ATCC 25618 / H37Rv)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	APKTYCEELKGTDTGQACQIQMSDPAYNINISLPSYYPDQKSLENYIAQTRDKF LSAATSSTPREAPYELNITSATYQSAIPPRGTQAVVLKVYQNAGGTHPTTTYKA FDWDQAYRKPITYDTLWQADTDPLPVVFPIVQGELSKQTGQQVSIAPNAGLDP VNYQNFAVTNDGVIFFFNPGELLPEAAGPTQVLVPRSAIDSMLA
Source	Yeast
Target Names	mpt64
Protein Names	Recommended name: Immunogenic protein MPT64Alternative name(s): Antigen MPT64
Expression Region	24-228aa
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	24.4kDa
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 Yeast host and target protein, the LC-MS/MS Analysis result of CSB-YP358713MVZ could indicate that this peptide derived from Yeast-expressed Mycobacterium tuberculosis mpt64.



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Description

This recombinant Mycobacterium tuberculosis Immunogenic protein MPT64 gets expressed in a yeast system and covers the full length of the mature protein from amino acids 24 to 228. An N-terminal 6xHis-tag is included to make purification and detection more straightforward. SDS-PAGE analysis confirms the protein shows purity greater than 90%, which should provide reliable performance in research applications.

MPT64 appears to be a well-characterized immunogenic protein from Mycobacterium tuberculosis that researchers have studied extensively for its role in the immune response to tuberculosis. It represents a significant component in understanding how hosts and pathogens interact and seems crucial for developing diagnostic tools and vaccines. The research community has found that MPT64 helps clarify tuberculosis pathogenesis and immunity, though much remains to be discovered.

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

This recombinant MPT64 protein may serve as an immunogen for generating polyclonal or monoclonal antibodies specific to Mycobacterium tuberculosis. The high purity (>90%) and N-terminal 6xHis tag likely make it suitable for immunization protocols and subsequent antibody purification using affinity chromatography. Since the expressed mature protein region (24-228aa) represents the native antigenic form, antibodies generated should recognize the natural MPT64 protein. These antibodies could become valuable research tools for studying M. tuberculosis infection mechanisms and protein localization studies.

2. ELISA-Based Binding Assays

The N-terminal 6xHis tag allows direct immobilization of the protein onto nickel-

coated ELISA plates for screening potential binding partners or inhibitors. Researchers might use this system to investigate protein-protein interactions involving MPT64 or to screen compound libraries for molecules that bind to this mycobacterial protein. The high purity level should minimize background interference in binding assays. This approach may provide insights into MPT64's molecular interactions within the mycobacterial proteome or with host cell components, though some interactions could be missed due to the artificial conditions.

3. Immunoblotting and Protein Detection Studies

This recombinant protein works as a positive control and molecular weight standard in Western blot experiments investigating MPT64 expression in M. tuberculosis cultures or clinical isolates. The known protein length and His-tag allow for precise identification using both anti-MPT64 antibodies and anti-His tag antibodies. Researchers can use this protein to validate antibody specificity and optimize detection protocols for studying MPT64 expression under different growth conditions or stress responses.

4. Affinity Purification and Pull-Down Experiments

The 6xHis tag makes it possible to immobilize MPT64 onto nickel-affinity resins for pull-down experiments to identify interacting proteins from M. tuberculosis lysates or host cell extracts. This approach might help clarify the protein interaction network involving MPT64 during mycobacterial infection or metabolism. The high purity of the recombinant protein should reduce non-specific binding, improving the reliability of identifying genuine interaction partners through mass spectrometry analysis of pulled-down complexes. However, some physiologically relevant interactions may be lost when the protein is removed from its native cellular context.

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.