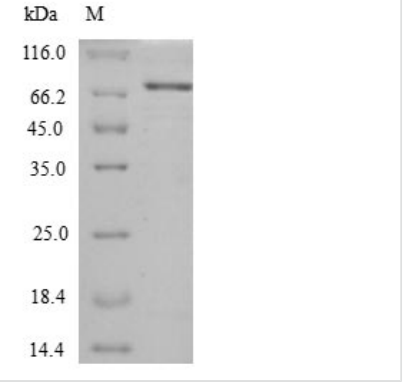
Recombinant Escherichia coli Chaperone protein HtpG (htpG)

Product Code	CSB-EP358897ENVe1
Relevance	Molecular chaperone. Has ATPase activity.
Abbreviation	Recombinant E.coli htpG 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.	P0A6Z3
Alias	Heat shock protein C62.5 Heat shock protein HtpG High temperature protein G
Product Type	Recombinant Protein
Immunogen Species	Escherichia coli (strain K12)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MKGQETRGFQSEVKQLLHLMIHSLYSNKEIFLRELISNASDAADKLRFRALSNP DLYEGDGELRVRVSFDKDKRTLTISDNGVGMTRDEVIDHLGTIAKSGTKSFLES LGSDQAKDSQLIGQFGVGFYSAFIVADKVTVRTRAAGEKPENGVFWESAGEG EYTVADITKEDRGTEITLHLREGEDEFLDDWRVRSIISKYSDHIALPVEIEKREEK DGETVISWEKINKAQALWTRNKSEITDEEYKEFYKHIAHDFNDPLTWSHNRVE GKQEYTSLLYIPSQAPWDMWNRDHKHGLKLYVQRVFIMDDAEQFMPNYLRFV RGLIDSSDLPLNVSREILQDSTVTRNLRNALTKRVLQMLEKLAKDDAEKYQTFW QQFGLVLKEGPAEDFANQEAIAKLLRFASTHTDSSAQTVSLEDYVSRMKEGQE KIYYITADSYAAAKSSPHLELLRKKGIEVLLLSDRIDEWMMNYLTEFDGKPFQSV SKVDESLEKLADEVDESAKEAEKALTPFIDRVKALLGERVKDVRLTHRLTDTPAI VSTDADEMSTQMAKLFAAAGQKVPEVKYIFELNPDHVLVKRAADTEDEAKFSE WVELLLDQALLAERGTLEDPNLFIRRMNQLLVS
Research Area	others
Source	E.coli
Target Names	htpG
Expression Region	1-624aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	Tag-Free
Mol. Weight	71.4kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Escherichia coli Chaperone protein HtpG comes from an E. coli expression system and includes the complete protein sequence from amino acids 1 to 624. The preparation contains no tags, which appears to minimize potential interference with normal protein function. SDS-PAGE analysis confirms purity levels above 90%, and the product shows no detectable endotoxins—both factors that may contribute to more reliable experimental outcomes.

HtpG belongs to the Hsp90 chaperone family and seems to play an essential role in how E. coli manages protein folding and stabilization. The protein likely helps newly synthesized polypeptides fold correctly and may assist in refolding proteins that become damaged under stress conditions. Research suggests HtpG is particularly important when bacteria face environmental challenges, which makes it an interesting target for studying how microorganisms respond to stress and maintain protein balance.

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. Protein-Protein Interaction Studies

Researchers can examine how this recombinant HtpG interacts with its client proteins and co-chaperones using methods like pull-down assays, surface plasmon resonance, or analytical ultracentrifugation. Having the complete protein sequence (1-624aa) means all functional domains remain intact for thorough interaction mapping. These experiments might reveal new details about the chaperone network and could identify previously unknown binding partners. The 90%+ purity level should be adequate for interaction studies without significant contamination issues.

2. Biochemical Characterization and ATPase Activity Assays

Scientists can perform detailed biochemical analysis of this recombinant HtpG, including measurements of ATPase activity, nucleotide binding behavior, and

kinetic parameters. Standard colorimetric or fluorometric assays work well for testing the protein's enzymatic function under different experimental conditions. High purity levels are crucial here since contaminating ATPases could skew results. Studies like these often provide key insights into how this Hsp90 family member actually works at the molecular level.

3. Antibody Development and Validation

This purified protein works well as an antigen for creating polyclonal or monoclonal antibodies that specifically recognize E. coli HtpG. The high purity and full-length structure should provide good epitope coverage during antibody production. Researchers can then test these antibodies using the same recombinant protein in ELISA, Western blot, and immunoprecipitation experiments. Having reliable antibodies opens up new possibilities for tracking HtpG expression, cellular location, and function in bacterial research.

4. Protein Folding and Stability Studies

This recombinant protein works for analyzing folding behavior and thermal stability through techniques like differential scanning calorimetry, circular dichroism spectroscopy, and fluorescence-based thermal shift assays. Such studies might shed light on how the protein changes shape and maintains stability when conditions vary. Clean, highly purified protein is critical for getting meaningful biophysical data and drawing sound conclusions about folding behavior. This type of characterization often forms the foundation for understanding how chaperone structure relates to function.

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.