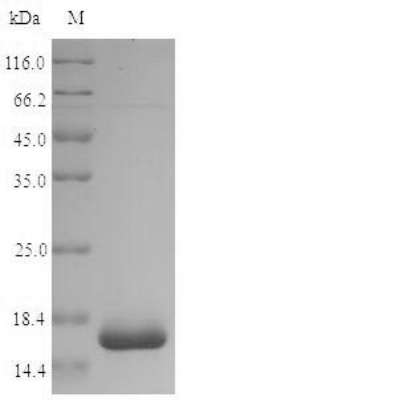
Recombinant Shigella dysenteriae serotype 1 60 kDa chaperonin (groL), partial

Product Code	CSB-EP656857SGF
Relevance	Prevents misfolding and promotes the refolding and proper assembly of unfolded polypeptides generated under stress conditions
Abbreviation	Recombinant Shigella dysenteriae serotype 1 groL protein, partial
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.	Q328C4
Alias	GroEL protein? Protein Cpn60
Product Type	Recombinant Protein
Immunogen Species	Shigella dysenteriae serotype 1 (strain Sd197)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	TEGLKAVAAGMNPMDLKRGIDKAVTAAVEELKALSVPCSDSKAIAQVGTISANS DETVGKLIAEAMDKVGKEGVITVEDGTGLQDELDVVEGMQFDRGYLSPYFINK PETGAVELESPFILLADKKISNIREMLPVLEAVAKAGKPLLIIAEDVEGEALATLV VNTMRGIVKVAAVKAPGFGDRRKAMLQDIATLTGGTVISEEIGMELEKATLEDL GQAKRVVINKDTTTIIDGVGEEAAIQGRVAQIRQQIEEATSDYDREKLQERVAKL AGGVAVIKVGAATEVEMKEKKARVEDALHATRAAVEEGVVAGGGVALIRVASK LADLRGQNEDQNVGIKVALRAMEAPLRQIVLNCGEEPSVVANTVKGGDGNYG YNAATEEYGNMIDMGILDPTKVTRSALQYAASVAGLMITTECMVTDLPKNDAA DLGAAGGMGGMGGMGGMM
Research Area	Microbiology
Source	E.coli
Target Names	groL
Protein Names	Recommended name: 60 kDa chaperonin Alternative name(s): GroEL protein Protein Cpn60
Expression Region	101-548
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	66.9kDa
Protein Length	Partial
Image	



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

Description

This recombinant Shigella dysenteriae serotype 1 60KDA chaperonin (groL) comes from an E. coli expression system and spans amino acids 101-548. The protein carries an N-terminal 10xHis-SUMO tag plus a C-terminal Myc tag, making purification and detection straightforward. SDS-PAGE analysis confirms purity levels above 90%, which should provide reliable material for research applications.

Chaperonins such as groL appear to be essential players in how cells fold their proteins properly. They seem to help newly made proteins—or those damaged by stress—find their correct three-dimensional shapes. Without these molecular assistants, cellular protein networks might collapse. Scientists have been studying chaperonins across many biological pathways, though the exact mechanisms behind their function remain an active area of investigation.

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. Bacterial Chaperonin Functional Studies

This GroL fragment (amino acids 101-548) may prove useful for examining specific structural domains within the Shigella dysenteriae chaperonin system. Working with a partial construct like this could help researchers focus on particular regions without dealing with complications that sometimes arise from full-length proteins. In vitro binding experiments might reveal how this fragment interacts with co-chaperonins or substrate proteins. The dual tagging system makes both purification and detection relatively simple during biochemical analysis.

2. Antibody Development and Validation

Those His-SUMO and Myc tags could make this protein particularly handy as an immunogen or control antigen when developing antibodies against Shigella dysenteriae GroL. The tagged protein works well in ELISA-based screens for

both monoclonal and polyclonal antibodies. Since purity exceeds 90%, immunoassay results should be consistent and reliable. This approach seems especially promising for creating research tools to study how Shigella causes disease and how bacteria respond to stress.

3. Protein-Protein Interaction Studies

Both the N-terminal His-SUMO and C-terminal Myc tags open up possibilities for pull-down experiments aimed at finding what molecules might bind to this GroL fragment. Scientists can attach the protein to affinity matrices, then screen bacterial lysates or purified protein collections for potential partners. These same tags also work for co-immunoprecipitation studies and protein complex analysis through mass spectrometry. Such experiments could uncover new regulatory pathways or reveal which substrates this chaperonin system prefers.

4. Comparative Chaperonin Research

This Shigella dysenteriae GroL fragment offers a solid foundation for comparing chaperonins across different bacterial species. Side-by-side biochemical tests might highlight species-specific variations in how chaperonins are built and how they function. The standardized expression and tagging methods make direct comparisons with similar fragments from related pathogens more straightforward. Studies like these may help explain how bacterial stress response systems evolved and became specialized over time.

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.