# Recombinant uncultured bacterium Flagellin

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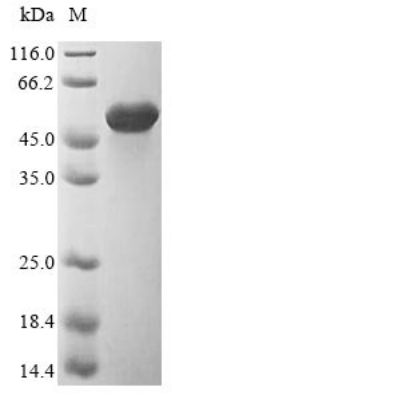
| **Product Code** | CSB-EP2352GKX |
| **Relevance** | Flagellin is the subunit protein which polymerizes to form the filaments of bacterial flagella. |
| **Abbreviation** | Recombinant Uncultured bacterium Flagellin protein |
| **Storage** | The shelf life is related to many factors, storage state, 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.** | Q6QA52 |
| **Product Type** | Recombinant Protein |
| **Purity** | Greater than 85% as determined by SDS-PAGE. |
| **Sequence** | MVVQHNLRAMNSNRMLGITQGSLNKSTEKLSSGYKVNRAADDAAGLSISEKM RKQIRGLSQASLNAEDGISAVQTAEGALTEVHDMLQRMNELAVKAANGTNSTS DRQTIQDEVDQLLTEIDRVAETTKFNELYTLKGDEDKVTRYLSAHDAGIEGTLT QGATNATFSMDQLKFGDTIMIAGREYHISGTKAEQAAIITASVKIGQQVTIDGIM YTCSSVSNADKFELKSEDLIAKLDTSSLSIMSVNGKTYYGAGITDDRTVVSSIGA YKLIQKELGLASSIGADGATQASVNAGVDGKTLMKPSFEGKWVFSIDKGSVQV REDIDFSLHVGADADMNNKIAVKIGALDTKGLGIQGLNVKDTTGAAATYAIDSIA DAVARISAQRSLLGAVQNRLEHTINNLDNVVENTTAAESQIRDTDMATEMVKY SNNNVLAQAGQSMLAQSNQANQGVLQLLQ |
| **Research Area** | Microbiology |
| **Source** | E.coli |
| **Expression Region** | 1-459aa |
| **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** | 49.0 kDa |
| **Protein Length** | Full Length |

**Image**




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

## Description

The Recombinant uncultured bacterium Flagellin is expressed in E. coli and spans the full length of 1-459 amino acids. This tag-free preparation ensures a native protein conformation, with a purity of greater than 85% as confirmed by SDS-PAGE analysis. This high-quality reagent appears to be specifically designed for research applications requiring precise protein characterization and study.

Flagellin is a structural protein that forms the filament of bacterial flagella. It plays what seems to be a crucial role in bacterial motility, enabling movement through liquid environments. Beyond this mechanical function, flagellin is recognized by the immune system as a pathogen-associated molecular pattern (PAMP), which makes it a significant focus in studies related to microbial pathogenesis and host-pathogen interactions.

### 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 Flagellin Structure-Function Studies

This recombinant flagellin protein may serve as a model system for investigating the structural organization and assembly mechanisms of bacterial flagellar filaments. The full-length 459 amino acid sequence provides researchers with complete flagellin domains for comparative structural analysis using techniques such as X-ray crystallography, cryo-electron microscopy, or NMR spectroscopy. The tag-free nature ensures that structural studies are not compromised by artificial modifications. Researchers could examine flagellin polymerization kinetics and filament formation under controlled in vitro conditions, though results might vary depending on experimental conditions.

#### 2. Innate Immune Response Research

Flagellin proteins are recognized pathogen-associated molecular patterns (PAMPs) that interact with Toll-like receptor 5 (TLR5) in mammalian immune systems. Scientists can apply this recombinant protein in cell culture-based assays to study TLR5 activation pathways, cytokine production, and downstream signaling cascades in immune cells. The protein appears useful for investigating species-specific differences in flagellin recognition or developing in vitro models for studying bacterial pathogen detection mechanisms, though individual experimental systems may show varying sensitivities.

#### 3. Antibody Development and Immunological Assays

The recombinant flagellin may serve as an immunogen for generating polyclonal or monoclonal antibodies specific to bacterial flagellar proteins. These antibodies could potentially be valuable research tools for detecting flagellated

bacteria in environmental or clinical samples through immunofluorescence, Western blotting, or ELISA-based assays. The high purity level (>85%) makes this protein suitable for immunization protocols and subsequent antibody characterization studies, though success rates will likely depend on the specific host species and immunization protocols used.

**4. Protein-Protein Interaction Studies**

Researchers can apply this flagellin protein in biochemical assays to investigate interactions with other flagellar components, chaperones, or host cell proteins. Pull-down assays, surface plasmon resonance, or yeast two-hybrid systems could incorporate this protein to map binding partners and characterize interaction affinities. Such studies would contribute to understanding flagellar assembly mechanisms and host-pathogen interactions at the molecular level, although the relevance of findings may vary across different bacterial species.

**5. Comparative Microbiology and Evolution Studies**

Since this flagellin originates from an uncultured bacterium, it represents what appears to be a unique research tool for comparative analysis with flagellins from cultured bacterial species. Scientists can apply this protein in phylogenetic studies, sequence alignment analyses, and functional comparisons to understand flagellin evolution and diversity in environmental bacterial communities. The protein might also serve as a reference standard in metagenomic studies investigating flagellar gene expression in uncultured microbial populations, though interpretation of results may require careful consideration of environmental context and bacterial community dynamics.

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| **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.<br>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. |