# Recombinant Salmonella typhi DNA-binding protein HU-beta (hupB)

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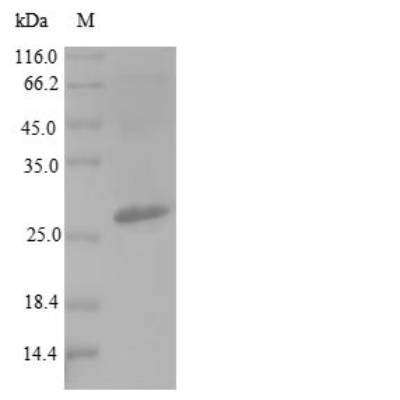
| **Product Code** | CSB-EP363134SWW |
| **Relevance** | Histone-like DNA-binding protein which is capable of wrapping DNA to stabilize it, and thus to prevent its denaturation under extreme environmental conditions. |
| **Abbreviation** | Recombinant Salmonella typhi hupB protein |
| **Storage** | The 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.** | P0A1R9 |
| **Alias** | HU-1 NS1 |
| **Product Type** | Recombinant Protein |
| **Immunogen Species** | Salmonella typhi |
| **Purity** | Greater than 90% as determined by SDS-PAGE. |
| **Sequence** | MNKSQLIEKIAAGADISKAAAGRALDAIIASVTESLKEGDDVALVGFGTFAVKERAARTGRNPQTGKEITIAAAKVPSFRAGKALKDAVN |
| **Research Area** | others |
| **Source** | E.coli |
| **Target Names** | hupB |
| **Protein Names** | Recommended name: DNA-binding protein HU-beta Alternative name(s): HU-1 NS1 |
| **Expression Region** | 1-90aa |
| **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** | 29.2kDa |
| **Protein Length** | Full Length |
| **Image** | |




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

## Description

This recombinant DNA-binding protein HU-beta from Salmonella typhi is expressed in E.coli and includes the full-length sequence from 1-90 amino acids. The protein carries an N-terminal 10xHis-SUMO tag and a C-terminal Myc tag, which streamlines purification and detection steps. Purity appears to exceed 90% as verified by SDS-PAGE, providing what seems to be a reliable reagent for research applications. This product is intended for research use only.

HU-beta is a DNA-binding protein that may play a crucial role in organizing and compacting bacterial chromosomal DNA. It's known for its ability to bend DNA, which likely influences processes such as replication, transcription, and recombination. As one of the nucleoid-associated proteins, HU-beta could be significant in studies examining DNA architecture and gene regulation in prokaryotic systems.

### 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. DNA-Protein Interaction Studies Using Electrophoretic Mobility Shift Assays (EMSA)

The recombinant HU-beta protein can be used to investigate its DNA-binding properties through EMSA experiments with various DNA substrates including linear, supercoiled, and damaged DNA fragments. The dual tagging system with N-terminal His-SUMO and C-terminal Myc tags allows for straightforward purification and detection during binding assays. Researchers can systematically analyze binding affinity, specificity, and cooperative binding behavior by adjusting protein concentrations against fixed DNA concentrations. This approach should provide quantitative data on the DNA-binding characteristics of Salmonella typhi HU-beta protein.

### 2. Antibody Development and Immunoassay Optimization

The dual-tagged recombinant protein serves as what appears to be an excellent immunogen and standard for developing specific antibodies against Salmonella typhi HU-beta. The His-SUMO and Myc tags simplify purification and enable sandwich ELISA development where anti-tag antibodies can serve as capture or detection reagents. Researchers can use this protein to screen hybridoma clones, validate antibody specificity, and establish quantitative immunoassays. The high purity level (>90%) suggests minimal cross-reactivity during antibody characterization studies.

**3. Protein-Protein Interaction Mapping via Pull-Down Assays**

The N-terminal His tag enables immobilization on nickel-affinity resins for pull-down experiments to identify HU-beta interacting partners from Salmonella typhi cell lysates or purified protein libraries. Meanwhile, the C-terminal Myc tag provides an additional detection method for Western blot confirmation of successful protein capture. This dual-tagging approach allows researchers to investigate the protein interaction network of HU-beta and identify potential regulatory partners or DNA-binding cofactors. Such studies may reveal insights into the molecular mechanisms of nucleoid organization in Salmonella typhi.

**4. Comparative Structural and Functional Analysis**

The recombinant protein can be used in comparative studies with HU proteins from other bacterial species to understand what appear to be species-specific differences in DNA-binding mechanisms. Researchers can perform side-by-side biochemical assays, circular dichroism spectroscopy, and dynamic light scattering experiments to compare structural properties and stability profiles. The standardized expression system and tagging strategy should make direct comparisons with similarly prepared HU proteins from different bacterial sources more straightforward. This approach enables systematic investigation of evolutionary relationships and functional divergence within the HU protein family.

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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. |