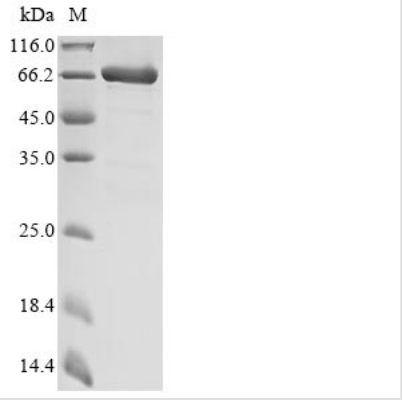
Recombinant Escherichia coli Fe/S biogenesis protein NfuA (nfuA),Biotinylated

Product Code	CSB-EP540344ENT-B
Abbreviation	Recombinant E.coli nfuA protein, Biotinylated
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.	B1X760
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Protein
Immunogen Species	ENT-Escherichia coli (strain K12 / DH10B)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MIRISDAAQAHFAKLLANQEEGTQIRVFVINPGTPNAECGVSYCPPDAVEATDT ALKFDLLTAYVDELSAPYLEDAEIDFVTDQLGSQLTLKAPNAKMRKVADDAPLM ERVEYMLQSQINPQLAGHGGRVSLMEITEDGYAILQFGGGCNGCSMVDVTLK EGIEKQLLNEFPELKGVRDLTEHQRGEHSYY
Research Area	Others
Source	E.coli
Target Names	nfuA
Expression Region	1-191aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal MBP-tagged and C-terminal 6xHis-Avi-tagged
Mol. Weight	68.8 kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Escherichia coli Fe/S biogenesis protein NfuA is produced in E. coli and contains the complete protein sequence from amino acids 1 to 191. The construct includes an N-terminal maltose-binding protein (MBP) tag and a C-terminal 6xHis-Avi tag, which appears to improve solubility and enable affinity purification. The protein undergoes biotinylation and shows a purity level above 85% when analyzed by SDS-PAGE, suggesting it should work well for controlled experimental work.

NfuA likely plays a key role in building iron-sulfur (Fe/S) clusters—cofactors that many cellular processes depend on. This protein seems to help assemble and deliver Fe/S clusters to their target proteins, making it important for cellular iron balance and metabolic function. Because of its involvement in these pathways, NfuA has become an interesting focus for researchers studying bacterial physiology and biochemistry.

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 Using Biotin-Streptavidin Capture

The biotinylated NfuA protein can stick to streptavidin-coated surfaces or beads, making it useful for studying how it interacts with other Fe/S cluster proteins or potential binding partners. Since biotin and streptavidin bind so tightly together, this method should keep the protein captured while preserving something close to its natural shape. Researchers could use this setup for pull-down experiments to find new interacting proteins from E. coli cell extracts or to better understand known interactions with other parts of the Fe/S assembly machinery. Having both MBP and His tags gives researchers extra options for capturing and detecting the protein in these interaction studies.

2. Antibody Development and Validation

This recombinant NfuA protein may work well as an antigen for creating

antibodies that specifically recognize E. coli NfuA. The >85% purity appears adequate for immunization protocols, and using the complete protein (1-191aa) should help ensure that antibodies will recognize the full native protein. The three different tags (MBP, His, and biotin) make purification and detection straightforward during antibody screening. These antibodies could then be used for Western blots, immunoprecipitation, or other immune-based assays in Fe/S cluster research.

3. Comparative Biochemical Analysis of Fe/S Biogenesis Proteins

Researchers can use this recombinant NfuA in side-by-side studies with other Fe/S cluster proteins to compare their stability, expression levels, and basic biochemical behavior. The protein works with techniques like dynamic light scattering, differential scanning fluorimetry, or analytical ultracentrifugation to measure its physical properties. Biotinylation makes it easy to track and quantify in complicated experimental setups. Meanwhile, the His-tag simplifies purification when comparing it directly with other tagged proteins.

4. ELISA-Based Detection and Quantification Assays

Scientists can use the biotinylated NfuA protein to build sandwich or competitive ELISA tests for detecting and measuring NfuA or similar proteins in bacterial extracts or culture samples. The biotin tag allows direct attachment to streptavidin-coated plates, while the His-tag offers another way to capture the protein. This approach might be especially helpful for tracking NfuA levels when E. coli grows under different conditions or faces various stresses. The assay could also be modified to screen for small molecules or environmental factors that influence NfuA amounts in bacterial systems.

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.