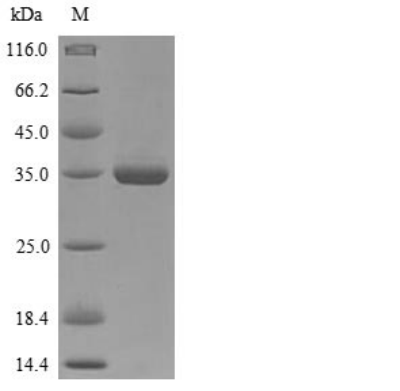
Recombinant Bordetella bronchiseptica Azurin (BB3856)

Product Code	CSB-YP358313BTYa4
Abbreviation	Recombinant Bordetella bronchiseptica Azurin 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.	P0A321
Product Type	Recombinant Protein
Immunogen Species	Bordetella bronchiseptica (strain ATCC BAA-588 / NCTC 13252 / RB50) (Alcaligenes bronchisepticus)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	AECSVDIAGTDQMQFDKKAIEVSKSCKQFTVNLKHTGKLPRNVMGHNWVLTK TADMQAVEKDGIAAGLDNQYLKAGDTRVLAHTKVLGGGESDSVTFDVAKLAA GDDYTFFCSFPGHGALMKGTLKLVD
Research Area	Others
Source	Yeast
Target Names	BB3856
Expression Region	22-150aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-sumostar-tagged
Mol. Weight	29.8 kDa
Protein Length	Full Length of Mature Protein
Image	 (Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Bordetella bronchiseptica Azurin (BB3856) is produced using a yeast expression system and contains the complete mature protein spanning amino acids 22 to 150. The protein includes an N-terminal 6xHis-sumostar tag, which aids in purification and detection processes. SDS-PAGE analysis confirms that the product achieves greater than 90% purity. This level of purity appears to support reliable performance in research work, while endotoxin levels remain appropriate for experimental applications.

Azurin from Bordetella bronchiseptica serves an important function in electron transfer processes. This small, blue copper protein participates in various biological oxidation-reduction reactions. Its capacity to mediate electron transfer has drawn attention from researchers studying bacterial respiratory pathways and bioenergetics. The protein's distinctive characteristics continue to make it valuable for biochemical and biophysical investigations.

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 Copper Homeostasis Research

This recombinant azurin may prove useful for investigating how Bordetella bronchiseptica handles copper trafficking and homeostasis through in vitro binding studies and protein-protein interaction assays. The N-terminal His-tag allows for purification and immobilization, making it possible to study interactions with other copper-binding proteins or metallochaperones. Scientists can explore the protein's role in bacterial copper metabolism pathways and draw comparisons with azurins from different bacterial species. The yeast expression system provides a eukaryotic folding environment that might help with proper copper coordination site formation, though this advantage isn't guaranteed.

2. Protein-Protein Interaction Studies

The His-sumostar tag system appears well-suited for pull-down assays designed to identify potential binding partners within Bordetella bronchiseptica proteomes or heterologous systems. This tag configuration supports both affinity purification through the His-tag and potential fusion protein studies using the sumostar component. Scientists can use this tagged azurin to map protein interaction networks connected to electron transport or copper metabolism in bacterial systems. Cross-linking mass spectrometry experiments could provide additional insights into binding interfaces and interaction stoichiometry, though these approaches may require optimization.

3. Comparative Azurin Structure-Function Analysis

This recombinant protein offers a useful tool for comparative studies that examine azurin diversity across different bacterial species, particularly within the

Bordetella genus. The mature protein sequence (aa 22-150) can be analyzed through spectroscopic techniques to characterize its folding properties and compare them with well-studied azurins from Pseudomonas species. Scientists can investigate sequence-structure relationships and examine how species-specific variations might affect protein stability and copper coordination. The high purity (>90%) makes it suitable for detailed biophysical characterization, though some applications may require even higher purity levels.

4. Antibody Development and Immunological Studies

The recombinant azurin can serve as an immunogen for generating specific antibodies against Bordetella bronchiseptica azurin in research settings. The purified protein supports the development of polyclonal or monoclonal antibodies for Western blotting, immunofluorescence, or immunohistochemistry studies of bacterial infections. These antibodies could become valuable tools for tracking azurin expression patterns during different growth phases or stress conditions in laboratory cultures. The His-tag also makes ELISA-based assays for antibody screening and characterization more straightforward, though cross-reactivity with the tag itself may require consideration.

5. Electron Transfer Mechanism Studies

This azurin can be incorporated into in vitro electron transfer assays to study its role in bacterial respiratory chains and investigate its redox properties. Scientists can examine electron transfer kinetics between this azurin and other redox-active proteins or artificial electron acceptors/donors. The protein's electrochemical properties can be characterized using techniques such as cyclic voltammetry to determine reduction potentials and electron transfer rates. Such studies may contribute to understanding bacterial energy metabolism and could inform broader research on biological electron transfer mechanisms, though interpreting results from recombinant proteins sometimes requires caution when extrapolating to native 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.