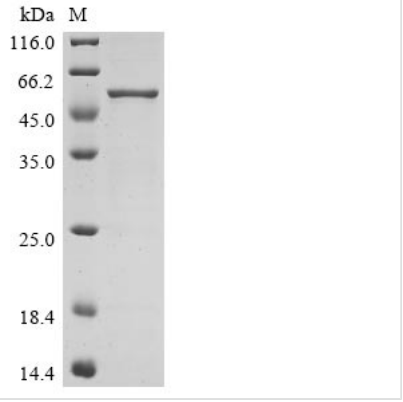
Recombinant Bovine coronavirus Nucleoprotein (N)

Product Code	CSB-EP352608BJN
Abbreviation	Recombinant Bovine coronavirus N 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.	P59712
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	Bovine coronavirus (strain Quebec) (BCoV) (BCV)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MSFTPGKQSSSRASFGNRSGNGILKWADQSDQSRNVQTRGRRAQPKQTATS QLPSGGNVVPYYSWFSGITQFQKGKEFEFAEGQGVPIAPGVPATEAKGYWYR HNRRSFKTADGNQRQLLPRWYFYYLGTGPHAKDQYGTDIDGVFWVASNQAD VNTPADILDRDPSSDEAIPTRFPPGTVLPQGYYIEGSGRSAPNSRSTSRASSRA SSAGSRSRANSGNRTPTSGVTPDMADQIASLVLAKLGKDATKPQQVTKQTAK EIRQKILNKPRQKRSPNKQCTVQQCFGKRGPNQNFGGGEMLKLGTSDPQFPI LAELAPTAGAFFFGSRLELAKVQNLSGNLDEPQKDVYELRYNGAIRFDSTLSG FETIMKVLNENLNAYQQQDGMMNMSPKPQRQRGQKNGQGENDNISVAAPKS RVQQNKSRELTAEDISLLKKMDEPYTEDTSEI
Research Area	Microbiology
Source	E.coli
Target Names	N
Expression Region	1-448aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	C-terminal 6xHis-tagged
Mol. Weight	50.3 kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Bovine coronavirus Nucleoprotein (N) is produced in E.coli and contains the complete expression region spanning amino acids 1-448. The protein features a C-terminal 6xHis tag, which makes purification and detection more straightforward. SDS-PAGE analysis confirms the nucleoprotein is greater than 90% pure, suggesting it provides a high-quality reagent for research purposes. This product is intended for research use only, not for diagnostic or therapeutic applications.

The nucleoprotein of Bovine coronavirus appears to play a critical role in the virus's life cycle. It's primarily involved in packaging viral RNA and forming the ribonucleoprotein complex. As a key component in viral replication and assembly, it may represent an important target for studies examining viral pathogenesis and host-virus interactions. This protein is likely valuable for research aimed at understanding coronavirus biology and developing antiviral strategies.

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. Antibody Development and Validation Studies

This full-length recombinant bovine coronavirus nucleoprotein can serve as an immunogen for generating polyclonal or monoclonal antibodies specific to BCoV N protein. The C-terminal 6xHis tag makes purification and immobilization for antibody screening assays more manageable. With >90% purity, it appears suitable for immunization protocols and subsequent antibody characterization experiments. Researchers might apply this protein in ELISA-based antibody validation assays to determine binding specificity and affinity.

2. Protein-Protein Interaction Studies

Pull-down assays could use the nucleoprotein to identify cellular or viral proteins that interact with BCoV N protein during infection. The C-terminal His-tag makes

immobilization on nickel-affinity matrices simpler for capturing potential binding partners from cell lysates or viral protein preparations. Co-immunoprecipitation experiments may also validate specific protein interactions. Such studies would likely contribute to understanding the molecular mechanisms behind bovine coronavirus replication and pathogenesis.

3. Biochemical Characterization and Biophysical Analysis

Detailed biochemical characterization becomes possible with this recombinant protein, including molecular weight confirmation, thermal stability analysis, and protein folding studies. The high purity level appears to allow for reliable spectroscopic analyses such as circular dichroism to examine secondary structure content. Size exclusion chromatography might be applied to study oligomerization states and protein complex formation. These analyses would probably provide fundamental insights into the structural properties of bovine coronavirus nucleoprotein.

4. Comparative Coronavirus Research

The recombinant BCoV nucleoprotein could serve as a reference standard in comparative studies examining nucleoprotein sequences, structures, and properties across different coronavirus species. Cross-reactivity studies with antibodies raised against other coronavirus nucleoproteins may identify conserved epitopes. This protein might also prove useful in phylogenetic and evolutionary studies of coronavirus nucleoproteins through sequence and structural comparisons with related viral proteins.

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.