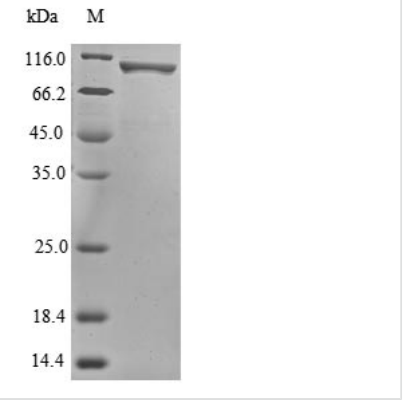
Recombinant Severe acute respiratory syndrome coronavirus 2 Nucleoprotein (N),Biotinylated

Product Code	CSB-EP3325GMY-B
Abbreviation	Recombinant SARS-CoV-2 N 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.	P0DTC9
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	Severe acute respiratory syndrome coronavirus 2 (2019-nCoV) (SARS-CoV-2)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MSDNGPQNQRNAPRITFGGPSDSTGSNQNGERSGARSKQRRPQGLPNNTA SWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMK DLSPRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNA AIVLQLPQGTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSRGTSP ARMAGNGGDAALALLLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKP RQKRTATKAYNVTQAFGRRGPEQTQGNFGDQELIRQGTDYKHWPQIAQFAP SASAFFGMSRIGMEVTPSGTWLTYTAAIKLDDKDPNFKDQVILLNKHIDAYKTF PPTEPKKDKKKKADETQALPQRQKKQQTVTLLPAADLDDFSKQLQQSMSSAD STQA
Research Area	Microbiology
Source	E.coli
Target Names	N
Expression Region	1-419aa
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	93.4 kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Severe acute respiratory syndrome coronavirus 2 Nucleoprotein (N), Biotinylated, is expressed in E. coli and covers the complete sequence spanning amino acids 1-419. The protein includes an N-terminal MBP-tag and a C-terminal 6xHis-Avi-tag, which appears to support diverse research applications. Purity reaches over 85% as confirmed by SDS-PAGE, though actual performance may vary depending on specific experimental conditions. This protein is designed strictly for research purposes and seems to provide a reliable foundation for scientific investigations.

The SARS-CoV-2 Nucleoprotein likely plays a central role in viral life cycle processes. It appears primarily involved in RNA genome packaging and ribonucleoprotein complex formation. Evidence suggests it's essential for viral replication and transcription, though the exact mechanisms remain an active area of study. Given these important functions, the Nucleoprotein has emerged as a key target for researchers working to understand coronavirus biology and develop new diagnostic or therapeutic 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. ELISA-based Binding Assays for Anti-SARS-CoV-2 Nucleoprotein Antibody Screening

This biotinylated nucleoprotein may work well as a capture antigen in ELISA setups when screening antibodies against the viral nucleoprotein. The biotin modification should allow straightforward attachment to streptavidin-coated plates, potentially providing more consistent antigen orientation compared to direct coating methods. Since the protein spans the full 1-419 amino acid sequence, it might detect antibodies that recognize various epitopes across the entire nucleoprotein structure. Researchers studying monoclonal antibody specificity and binding strength could find this particularly useful, though individual antibody characteristics will ultimately determine detection sensitivity.

2. Streptavidin-Based Pull-Down Assays for Protein-Protein Interaction Studies

Researchers can immobilize the biotinylated nucleoprotein on streptavidin beads to explore potential interactions with host proteins or other viral components under controlled conditions. The biotin-streptavidin bond appears quite stable and may withstand rigorous washing steps that help minimize unwanted background binding. Having both MBP and His tags offers some flexibility during purification and detection phases of experiments. Pull-down studies like these might reveal cellular factors that interact with SARS-CoV-2 nucleoprotein, though confirming physiological relevance would require additional validation approaches.

3. Surface Plasmon Resonance (SPR) Studies for Kinetic Analysis

SPR experiments may benefit from immobilizing this biotinylated nucleoprotein on streptavidin-coated sensor chips to measure binding kinetics with different partners—antibodies, small molecules, or nucleic acids. The biotin tag likely ensures proper orientation and stable attachment to the sensor surface, which is crucial for getting meaningful kinetic data. With purity exceeding 85% and the full-length protein structure intact, this reagent seems well-suited for quantitative measurements. Scientists can potentially extract detailed information about binding strength, how fast interactions form, and how quickly they fall apart under defined experimental conditions.

4. Immunofluorescence and Flow Cytometry Applications

When paired with fluorescent streptavidin reagents, the biotinylated nucleoprotein might prove useful in cell-based research assays. Immunofluorescence studies could benefit from this combination as a detection system, particularly when examining antibody binding patterns under microscopy. Flow cytometry applications may also work well—the biotinylated protein combined with streptavidin-fluorochrome conjugates could help detect and measure anti-nucleoprotein antibodies in research samples. The biotin modification offers flexibility since researchers can choose from various fluorescent detection systems depending on their specific experimental needs and equipment setup.

5. Biochemical Characterization and Structural Studies

This recombinant full-length nucleoprotein, with its dual tagging system, appears suitable for detailed biochemical studies including protein stability tests, oligomerization experiments, and nucleic acid binding assays. The MBP tag might help with protein solubility and proper folding, while the His tag could prove handy if additional purification steps become necessary for particular experiments. Scientists working with truncated versions or mutant nucleoproteins might find the biotinylated form serves as a useful reference standard for comparative analyses, though direct head-to-head testing would be needed to confirm any functional differences.

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.