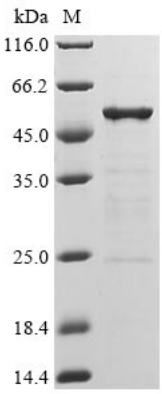
Recombinant Severe acute respiratory syndrome coronavirus 2 Nucleoprotein (N) (Q384H) (Active)

Product Code	CSB-EP3325GMY(M11)
Abbreviation	Recombinant SARS-CoV-2 N protein (Q384H) (Active)
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	Lyophilized powder
Storage Buffer	Lyophilized from 20 mM Tris-HCl, 0.5 M NaCl, 6% Trehalose, pH 8.0
Product Type	Recombinant Protein
Immunogen Species	Severe acute respiratory syndrome coronavirus 2 (2019-nCoV) (SARS-CoV-2)
Biological Activity	①Measured by its binding ability in a functional ELISA. Immobilized N (CSB-EP3325GMY(M11)) at 2 μg/ml can bind N Mouse Monoclonal Antibody(CSB-MA33255A2m), the EC_{50} of N Mouse Monoclonal Antibody is 7.617-10.60 ng/ml.②Measured by its binding ability in a functional ELISA. Immobilized N (CSB-EP3325GMY(M11)) at 2 μg/ml can bind N Recombinant Antibody(CSB-RA33255A1GMY), the EC_{50} of N Recombinant Antibody is 2.785-4.100 ng/ml.
Purity	Greater than 84% as determined by SDS-PAGE.
Sequence	MSDNGPQNQRNAPRITFGGPSDSTGSNQNGERSGARSKQRRPQGLPNNTA SWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMK DLSPRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNA AIVLQLPQGTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSRGTSP ARMAGNGGDAALALLLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKP RQKRTATKAYNVTQAFGRRGPEQTQGNFGDQELIRQGTDYKHWPQIAQFAP SASAFFGMSRIGMEVTPSGTWLTYTGAIKLDDKDPNFKDQVILLNKHIDAYKTF PPTEPKKDKKKKADETQALPHRQKKQQTVTLLPAADLDDFSKQLQQSMSSAD STQA
Research Area	Microbiology
Source	E.coli
Target Names	N
Expression Region	1-419aa(Q384H)
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	49.7 kDa

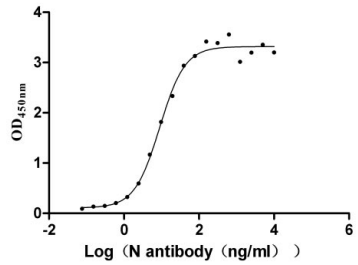
Protein Length

Full Length

Image



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



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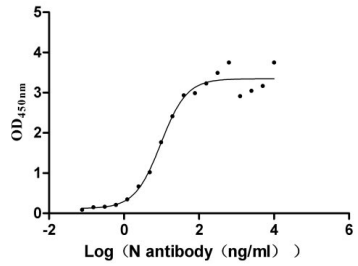

Activity
Measured by its binding ability in a functional ELISA. Immobilized N (CSB-EP3325GMY(M11)) at 2 μg/ml can bind N Recombinant Antibody(CSB-RA33255A1GMY), the EC_{50} of N Recombinant Antibody is 2.785-4.100 ng/ml.

Description

Recombinant Severe acute respiratory syndrome coronavirus 2 Nucleoprotein (N) (Q384H) is expressed in E. coli, covering the full-length sequence from 1-419 amino acids with a Q384H mutation. This protein features an N-terminal 6xHis-tag, which makes purification straightforward. It achieves a purity greater than 84% as verified by SDS-PAGE. Functional ELISA confirms its biological activity, showing strong binding capabilities with specific antibodies—this suggests it's well-suited for research applications.

SARS-CoV-2's nucleoprotein (N) appears to play a critical role in the viral replication cycle and seems essential for ribonucleoprotein formation. It's involved in packaging the viral RNA genome and modulating host cellular processes. This makes it a key target for research into viral pathogenesis and potential therapeutic interventions. The protein's significance in coronavirus biology studies and vaccine development may underscore its importance in ongoing scientific 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. ELISA-Based Antibody Screening and Characterization

This recombinant SARS-CoV-2 nucleoprotein can serve as a capture antigen in ELISA platforms for screening and characterizing anti-nucleoprotein antibodies. The demonstrated binding activity with both monoclonal and recombinant antibodies, with defined EC50 values, establishes its reliability as an antigen for antibody binding assays. The N-terminal 6xHis tag makes oriented immobilization on nickel-coated plates possible, which might improve antibody binding consistency. Researchers evaluating the binding kinetics and specificity of newly developed anti-N protein antibodies could find this particularly valuable.

2. Protein-Protein Interaction Studies

The biologically active nucleoprotein can help investigate its interactions with other viral or host proteins through pull-down assays and co-immunoprecipitation experiments. Its N-terminal 6xHis tag allows for efficient purification and immobilization on nickel-based affinity matrices, capturing potential binding partners from cell lysates or purified protein preparations. These studies may provide insights into the molecular mechanisms of SARS-CoV-2 replication and host cell interactions. Using the full-length protein (1-419aa) with the Q384H variant likely ensures that interaction studies reflect the complete protein structure and any variant-specific binding properties.

3. Biochemical and Biophysical Characterization

This purified nucleoprotein preparation works well for detailed biochemical analysis—structural studies, thermal stability assays, and protein folding investigations. The >84% purity level makes it suitable for techniques such as dynamic light scattering, circular dichroism spectroscopy, and analytical ultracentrifugation to characterize the protein's biophysical properties. The Q384H variant enables comparative studies with wild-type nucleoprotein, helping researchers understand how this specific mutation affects protein stability and conformation. Such characterization work contributes to fundamental understanding of SARS-CoV-2 nucleoprotein structure-function relationships.

4. Immunoassay Development and Validation

The recombinant nucleoprotein can serve as a reference standard and positive control when developing new immunoassays for research applications. Its demonstrated binding activity with defined EC50 values provides quantitative benchmarks for assay optimization and validation. Consistent expression in E. coli and His-tag purification appears to ensure reproducible protein preparations for standardizing assay conditions. This supports the development of research tools for studying immune responses and antibody production in preclinical

models.

5. Antigen Presentation and Immunological Studies

This biologically active nucleoprotein proves useful in in vitro immunological studies investigating antigen processing and presentation pathways. Antigen-presenting cells in culture systems can process the full-length protein, allowing researchers to study MHC class I and II presentation of nucleoprotein-derived peptides. The Q384H variant lets researchers examine how specific mutations might affect antigen processing and immune recognition patterns. Such studies may contribute to understanding the immunological properties of SARS-CoV-2 nucleoprotein variants in controlled research environments.

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.