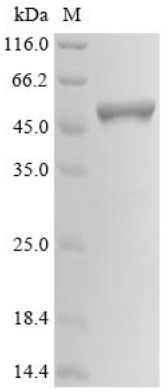
Recombinant Severe acute respiratory syndrome coronavirus 2 Nucleoprotein (N) (D103Y) (Active)

Product Code	CSB-EP3325GMY(M5)
Abbreviation	Recombinant SARS-CoV-2 N protein (D103Y) (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(M5)) at 2 μg/ml can bind N Mouse Monoclonal Antibody(CSB-MA33255A2m), the EC_{50} of N Mouse Monoclonal Antibody is 4.620-6.350 ng/ml.②Measured by its binding ability in a functional ELISA. Immobilized N (CSB-EP3325GMY(M5)) at 2 μg/ml can bind N Recombinant Antibody(CSB-RA33255A1GMY), the EC_{50} of N Recombinant Antibody is 7.358-9.976 ng/ml.
Purity	Greater than 94% as determined by SDS-PAGE.
Sequence	MSDNGPQNQRNAPRITFGGPSDSTGSNQNGERSGARSKQRRPQGLPNNTASWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMKYLSPRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQLPQGTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSRGTSPARMAGNGGDAALALLLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGRRGPEQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYTGAIKLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTVTLLPAADLDDFSKQLQQSMSSADSTQA
Research Area	Microbiology
Source	E.coli
Target Names	N
Expression Region	1-419aa(D103Y)
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	49.8 kDa

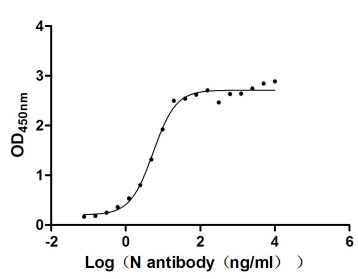
Protein Length

Full Length

Image



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



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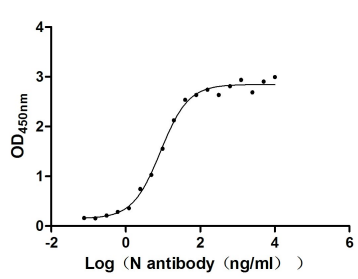

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Description

Recombinant Severe acute respiratory syndrome coronavirus 2 Nucleoprotein (N) (D103Y) is produced in E. coli with an N-terminal 6xHis-tag, covering the complete protein sequence (1-419aa). The product shows purity levels above 94% as confirmed by SDS-PAGE. Functional ELISA assays indicate the protein retains biological activity, with specific binding to both N Mouse Monoclonal Antibody and N Recombinant Antibody showing EC50 values in the nanogram range.

SARS-CoV-2's Nucleoprotein (N) appears central to viral replication, playing important roles in RNA packaging and ribonucleoprotein complex assembly. As a key structural element of the virus, it's involved in regulating both replication and transcription processes. Researchers often target this protein when developing antiviral drugs or studying immune responses, given its essential functions throughout the viral life cycle.

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 carrying the D103Y mutation may serve as an immobilized antigen in ELISA assays for screening and characterizing anti-nucleoprotein antibodies. The confirmed binding activity with both monoclonal and recombinant antibodies, along with defined EC50 values, suggests its reliability as a capture antigen. Scientists can assess antibody specificity, affinity, and cross-reactivity in comparative studies. The N-terminal 6xHis tag allows for oriented attachment on nickel-coated plates, which could improve assay consistency and reproducibility.

2. Protein-Protein Interaction Studies

With its high purity (>94%) and demonstrated biological activity, this nucleoprotein appears well-suited for studying protein-protein interactions involving the SARS-CoV-2 nucleocapsid protein. The 6xHis tag makes pull-down assays possible to identify cellular proteins that interact with the nucleoprotein during viral replication or host cell response. Scientists might apply this protein in co-immunoprecipitation experiments or surface plasmon resonance studies to characterize binding kinetics with potential interaction partners. The D103Y mutation enables comparative analysis against wild-type nucleoprotein, helping researchers understand how this specific amino acid change impacts protein interactions.

3. Structural and Biochemical Characterization

This full-length recombinant nucleoprotein can support detailed structural and biochemical analysis of the SARS-CoV-2 nucleocapsid protein. Its high purity level makes it appropriate for biophysical techniques such as circular dichroism spectroscopy, dynamic light scattering, or analytical ultracentrifugation to examine protein folding and oligomerization properties. Researchers might investigate how the D103Y mutation affects protein stability, conformation, or self-assembly compared to the wild-type protein. The E. coli expression system provides adequate quantities for multiple analytical approaches while preserving biological activity.

4. Immunoassay Development and Validation

The binding characteristics with defined EC50 values suggest this protein could be valuable for developing and validating new immunoassay formats for research applications. Scientists can potentially use this protein as a reference standard to optimize assay conditions, establish detection limits, and validate assay performance parameters. The consistent binding activity may enable development of sandwich ELISA formats or other immunoassay configurations for detecting anti-nucleoprotein antibodies in research samples. The 6xHis tag

offers flexibility in assay design through various attachment strategies on different solid supports.

5. Comparative Mutational Analysis

This D103Y mutant nucleoprotein works as a specific research tool for studying the functional consequences of this particular amino acid substitution. Researchers can perform direct comparisons with wild-type nucleoprotein to assess how the D103Y mutation affects antibody recognition patterns, protein stability, or biochemical properties. The confirmed biological activity and antibody binding capability provide a baseline for evaluating the impact of this mutation on protein function. Such studies may contribute to understanding nucleoprotein sequence-function relationships and the significance of naturally occurring or engineered mutations.

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.