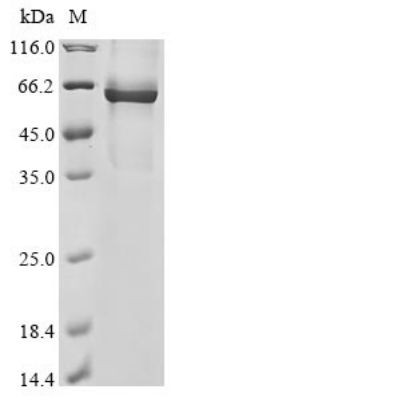
Recombinant Human coronavirus OC43 Nucleoprotein (N)

Product Code	CSB-MP333798HIY
Abbreviation	Recombinant Human coronavirus OC43 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.	P33469
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	Human coronavirus OC43 (HCoV-OC43)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MSFTPGKQSSSRASSGNRSGNGILKWADQSDQVRNVQTRGRRAQPKQTATS QQPSGGNVVPYYSWFSGITQFQKGKEFEFVEGQGPPIAPGVPATEAKGYWY RHNRGSFKTADGNQRQLLPRWYFYYLGTGPHAKDQYGTDIDGVYWVASNQA DVNTPADIVDRDPSSDEAIPTRFPPGTVLPQGYYIEGSGRSAPNSRSTSRTSS RASSAGSRSRANSGNRTPTSGVTPDMADQIASLVLAKLGKDATKPQQVTKHT AKEVRQKILNKPRQKRSPNKQCTVQQCFGKRGPNQNFGGGEMLKLGTSDPQ FPILAELAPTAGAFFFGSRLELAKVQNLSGNPDEPQKDVYELRYNGAIRFDSTL SGFETIMKVLNENLNAYQQQDGMMNMSPKPQRQRGHKNGQGENDNISVAVP KSRVQQNKSRELTAEDISLLKKMDEPYTEDTSEI
Research Area	Microbiology
Source	Mammalian cell
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	N-terminal 10xHis-tagged and C-terminal Myc-tagged
Mol. Weight	54.3 kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Human coronavirus OC43 Nucleoprotein (N) is produced in a mammalian expression system, which appears to ensure proper folding and post-translational modifications. This full-length protein covers amino acids 1 to 448 and includes an N-terminal 10xHis-tag and a C-terminal Myc-tag that help with purification and detection. SDS-PAGE analysis confirms the protein shows purity levels greater than 85%, making it suitable for various research applications.

The nucleoprotein (N) of Human coronavirus OC43 plays a crucial role in the virus's life cycle. It's primarily involved in viral RNA encapsidation and appears essential for nucleocapsid assembly and stability. This protein also seems to act as a key regulator of viral replication and transcription. Understanding how this protein works may be vital for research into coronavirus biology and potential 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. Antibody Development and Validation

This full-length recombinant HCoV-OC43 nucleoprotein can serve as an immunogen for generating monoclonal or polyclonal antibodies specific to the viral nucleoprotein. The dual His and Myc tags allow for purification and detection during antibody screening processes. Researchers can apply this protein in ELISA-based assays to validate antibody specificity and determine binding affinities. The mammalian expression system likely preserves proper protein folding, which may maintain conformational epitopes important for antibody recognition.

2. Protein-Protein Interaction Studies

Both the N-terminal His tag and C-terminal Myc tag make this nucleoprotein suitable for pull-down assays to identify host cellular proteins that interact with

HCoV-OC43 nucleoprotein. Researchers can immobilize the protein on nickel-affinity resins or anti-Myc antibody-conjugated beads to capture potential binding partners from cell lysates. These interaction studies could provide insights into viral replication mechanisms and host-pathogen interactions. The full-length protein (1-448aa) preserves all potential interaction domains that might be present in the native nucleoprotein.

3. Biochemical Characterization and Structural Studies

This recombinant protein works well for in vitro biochemical analyses to characterize the biophysical properties of HCoV-OC43 nucleoprotein. These include thermal stability, oligomerization behavior, and RNA-binding capabilities. The high purity (>85%) and mammalian expression system make it suitable for structural studies such as crystallography or cryo-electron microscopy. Researchers can investigate the protein's self-assembly properties and nucleocapsid formation mechanisms under controlled laboratory conditions.

4. Immunoassay Development and Optimization

The dual-tagged nucleoprotein serves as a valuable standard and control reagent for developing research-grade immunoassays targeting HCoV-OC43. His and Myc tags allow for straightforward detection and quantification in ELISA, Western blot, and other immunoassay formats. Researchers can use this protein to establish assay parameters, validate detection limits, and create standard curves for quantitative measurements. The full-length protein provides comprehensive antigenic coverage for assay development purposes.

5. Comparative Coronavirus Research

This HCoV-OC43 nucleoprotein can be used in comparative studies alongside nucleoproteins from other coronavirus species to investigate evolutionary relationships and functional conservation. Researchers can perform cross-reactivity studies with antibodies raised against different coronavirus nucleoproteins to map conserved and variable epitopes. The standardized expression system and purification tags make direct comparisons with similarly produced nucleoproteins from related coronaviruses more straightforward in biochemical and immunological assays.

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.