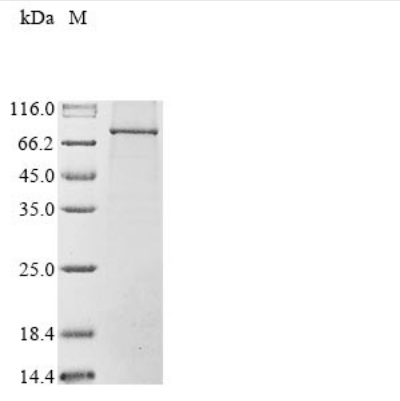
Recombinant Human Nuclear cap-binding protein subunit 1 (NCBP1)

Product Code	CSB-BP600211HU
Abbreviation	Recombinant Human NCBP1 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.	Q09161
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	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MSRRRHSDENDGGQPHKRRKTSDANETEDHLESLICKVGEKSACSLESNLEG LAGVLEADLPNYKSKILRLLCTVARLLPEKLTIYTTLVGLLNARNYNFGGEFVEA MIRQLKESLKANNYNEAVYLVRFLSDLVNCHVIAAPSMVAMFENFVSVTQEED VPQVRRDWYVYAFLSSLPWVGKELYEKKDAEMDRIFANTESYLKRRQKTHVP MLQVWTADKPHPQEEYLDCLWAQIQKLKKDRWQERHILRPYLAFDSILCEALQ HNLPPFTPPPHTEDSVYPMPRVIFRMFDYTDDPEGPVMPGSHSVERFVIEENL HCIIKSHWKERKTCAAQLVSYPGKNKIPLNYHIVEVIFAELFQLPAPPHIDVMYT TLLIELCKLQPGSLPQVLAQATEMLYMRLDTMNTTCVDRFINWFSHHLSNFQF RWSWEDWSDCLSQDPESPKPKFVREVLEKCMRLSYHQRILDIVPPTFSALCP ANPTCIYKYGDESSNSLPGHSVALCLAVAFKSKATNDEIFSILKDVPNPNQDDD DDEGFSFNPLKIEVFVQTLLHLAAKSFSHSFSALAKFHEVFKTLAESDEGKLHV LRVMFEVWRNHPQMIAVLVDKMIRTQIVDCAAVANWIFSSELSRDFTRLFVWEI LHSTIRKMNKHVLKIQKELEEAKEKLARQHKRRSDDDDRSSDRKDGVLEEQIE RLQEKVESAQSEQKNLFLVIFQRFIMILTEHLVRCETDGTSVLTPWYKNCIERL QQIFLQHHQIIQQYMVTLENLLFTAELDPHILAVFQQFCALQA
Research Area	Epigenetics and Nuclear Signaling
Source	Baculovirus
Target Names	NCBP1
Expression Region	1-790aa
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	95.7 kDa
Protein Length	Full Length

Image



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

Description

Recombinant Human Nuclear cap-binding protein subunit 1 (NCBP1) is expressed in a baculovirus system, covering the full length of 1-790 amino acids. The protein carries an N-terminal 10xHis-tag and a C-terminal Myc-tag, which streamline purification and detection in experimental applications. SDS-PAGE analysis indicates the product achieves greater than 85% purity, making it suitable for various research applications that demand high-quality reagents.

NCBP1 appears to be an essential component of the cap-binding complex and plays a critical role in mRNA processing and stability. The protein is involved in the initial steps of mRNA transport from the nucleus to the cytoplasm and is vital for efficient mRNA splicing and translation. NCBP1's function in these pathways makes it an important protein for studies on gene expression regulation and cellular response mechanisms.

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. RNA Cap-Binding Complex Assembly and Characterization Studies

This full-length NCBP1 protein can be used to reconstitute the nuclear cap-binding complex (CBC) in vitro by co-expressing or mixing with NCBP2 (CBP20). The dual His and Myc tags enable purification and detection in pull-down assays to study protein-protein interactions within the CBC. Researchers may investigate the stoichiometry, binding kinetics, and structural requirements for CBC formation using biochemical approaches. The baculovirus expression system typically provides proper eukaryotic folding, which likely makes this protein suitable for functional complex assembly studies.

2. mRNA Cap Structure Binding Assays

The recombinant NCBP1 can be used in in vitro binding assays to study interactions with 7-methylguanosine cap structures on mRNA. Cap-analog resins or synthetic capped RNA substrates allow researchers to characterize binding specificity and affinity. The N-terminal His tag streamlines protein immobilization for surface plasmon resonance or other biophysical binding studies. These assays can help elucidate the molecular basis of cap recognition and the role of different NCBP1 domains in RNA binding.

3. Antibody Development and Validation

The dual-tagged full-length NCBP1 serves as an excellent antigen for generating specific antibodies against human NCBP1. Its high purity (>85%) and full-length nature ensure comprehensive epitope coverage for polyclonal antibody production. Both Myc and His tags can be used as positive controls in immunoassays to validate antibody specificity and cross-reactivity. Generated antibodies can subsequently be used for immunoprecipitation, Western blotting, and immunofluorescence studies of endogenous NCBP1 in cell biology research.

4. Protein-Protein Interaction Screening

The tagged NCBP1 protein can be used in pull-down assays to identify novel interacting partners involved in mRNA processing and nuclear export pathways. The His tag enables immobilization on metal affinity resins for capturing potential binding partners from cell lysates or purified protein libraries. Meanwhile, the Myc tag allows for easy detection and quantification of the bait protein in these interaction studies. This approach may help map the NCBP1 interactome and discover new components of cap-dependent RNA metabolism pathways.

5. Structural and Biophysical Characterization Studies

This full-length recombinant NCBP1 provides material for detailed structural studies including X-ray crystallography, NMR spectroscopy, or cryo-electron microscopy analysis. The protein can be used to investigate conformational changes upon RNA binding or complex formation with NCBP2. Biophysical techniques such as dynamic light scattering, analytical ultracentrifugation, and thermal stability assays can characterize the protein's oligomerization state and stability. The baculovirus expression system's post-translational modification capabilities may preserve native-like protein structure for these analyses.

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.