

## NCBP1 Protein, Human, Recombinant (E. coli, His &amp; Myc)

## General Information

Synonyms:	NCBP;CBP80;Nuclear cap-binding protein subunit 1;NCBP1;80 kDa nuclear cap-binding protein (CBP80;NCBP 80 kDa subunit)
Protein Construction:	1-790 aa
Species:	Human
Expression Host:	E. coli
Accession:	Q09161
Molecular Weight:	99.3 kDa (predicted)
AA Sequence:	MSRRRHSDENDGGQPHKRRKTSANETEDHLESICKVGEKSACSLESNLEGLAGVLEADLPNYKSKILRLLC TVARLLPEKLIYTTLVGLLNARNYNFGGEFVEAMIRQLKESLKANNYNEAVYLVRFLSDLVNCHVIAAPSMVA MFENFVSVTQEEDVPQVRRDWYVYAFSSLPWVGKELYEKKDAEMDRIFANTESYLKRRQKTHVPMQLQVWT ADKPHPQEEYLDCLWAQIQKLLKDRWQERHILRPYLAFDLSILCEALQHNLPPFTPPPHTEDSVYPMPRVIFRM FDYTDDEPGPVMGSHSVERFVIEENLHCCI KSHWKERKTCAAQLVSYPGKNKIPLNYHIVEVIFAELFQLPAPP HIDVMYTTLLIELCKLQPGSLPQVLAQATEMLYMRDLTMTNTTCVDRFINWFSHLSNFQFRWSWEDWSDCLS QDPESP KPFVREVLEKCMRLSYHQIRILDIVPPTFSALCPANPTCIYKYGDESSNSLPGHSVALCLAVAFKSKA TNDEIFSILKDVPNPNQDDDDDEGFSFNPLKIEVFVQTLHLA AKSFHSFSALAKFHEVFKTLAESDEGKLHV LRVMFEVWRNHPQMI AVLVDKMIRTQIVDCAAVANWIFSESLSRDFTRLFVWEILHSTIRKMNKHV LKIQKELE EAKEKLARQHRRSDDDDRSSDRKDG VLEE QIERLQEKVESAQSEQKNLFLVIFQRFIMILTEHLVRCETDGT S VLTPWYKNCIERLQQIFLQH HQIIQQYMTLENLLFTAELDPHILAVFQQFCALQA

## QC Testing

Biological Activity:	Activity has not been tested. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 85% as determined by SDS-PAGE.
Endotoxin:	< 1.0 EU/ $\mu$ g of the protein as determined by the LAL method.
Formulation:	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, pH 8.0.

## Preparation and Storage

## Reconstitution:

Reconstitute the lyophilized protein in sterile deionized water. The product concentration should not be less than 100  $\mu$ g/mL. Before opening, centrifuge the tube to collect powder at the bottom. After adding the reconstitution buffer, avoid vortexing or pipetting for mixing.

## Stability &amp; Storage:

Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Component of the cap-binding complex (CBC), which binds cotranscriptionally to the 5'-cap of pre-mRNAs and is involved in various processes such as pre-mRNA splicing, translation regulation, nonsense-mediated mRNA decay, RNA-mediated gene silencing (RNAi) by microRNAs (miRNAs) and mRNA export. The CBC complex is involved in mRNA export from the nucleus via its interaction with ALYREF/THOC4/ALY, leading to the recruitment of the mRNA export machinery to the 5'-end of mRNA and to mRNA export in a 5' to 3' direction through the nuclear pore. The CBC complex is also involved in mediating U snRNA and intronless mRNAs export from the nucleus. The CBC complex is essential for a pioneer round of mRNA translation, before steady state translation when the CBC complex is replaced by cytoplasmic cap-binding protein eIF4E. The pioneer round of mRNA translation mediated by the CBC complex plays a central role in nonsense-mediated mRNA decay (NMD), NMD only taking place in mRNAs bound to the CBC complex, but not on eIF4E-bound mRNAs. The CBC complex enhances NMD in mRNAs containing at least one exon-junction complex (EJC) via its interaction with UPF1, promoting the interaction between UPF1 and UPF2. The CBC complex is also involved in 'failsafe' NMD, which is independent of the EJC complex, while it does not participate in Staufen-mediated mRNA decay (SMD). During cell proliferation, the CBC complex is also involved in microRNAs (miRNAs) biogenesis via its interaction with SRRT/ARS2 and is required for miRNA-mediated RNA interference. The CBC complex also acts as a negative regulator of PARN, thereby acting as an inhibitor of mRNA deadenylation. In the CBC complex, NCBP1/CBP80 does not bind directly capped RNAs (m7GpppG-capped RNA) but is required to stabilize the movement of the N-terminal loop of NCBP2/CBP20 and lock the CBC into a high affinity cap-binding state with the cap structure. Associates with NCBP3 to form an alternative cap-binding complex (CBC) which plays a key role in mRNA export and is particularly important in cellular stress situations such as virus infections. The conventional CBC with NCBP2 binds both small nuclear RNA (snRNA) and messenger (mRNA) and is involved in their export from the nucleus whereas the alternative CBC with NCBP3 does not bind snRNA and associates only with mRNA thereby playing a role only in mRNA export. NCBP1/CBP80 is required for cell growth and viability.

**Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins**

**This product is for Research Use Only · Not for Human or Veterinary or Therapeutic Use**

Tel: 781-999-4286    E\_mail: info@targetmol.com    Address: 34 Washington Street, Wellesley Hills, MA 02481