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NCBP1 Antibody

Catalog # ASC11672

Product Information

Application	WB, ICC, E
Primary Accession	Q09161
Other Accession	NP_002477, 4505343
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	91839
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	NCBP1 antibody can be used for detection of NCBP1 by Western blot at 1 - 2 g/mL.

Additional Information

Gene ID	4686
Other Names	Nuclear cap-binding protein subunit 1, 80 kDa nuclear cap-binding protein, CBP80, NCBP 80 kDa subunit, NCBP1, CBP80, NCBP
Target/Specificity	NCBP1; NCBP1 antibody is human, mouse and rat reactive. At least two isoforms of NCBP1 are known to exist; this antibody will detect both isoforms of NCBP1.
Reconstitution & Storage	NCBP1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	NCBP1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	NCBP1
Synonyms	CBP80, NCBP
Function	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 (PubMed:26382858).
Cellular Location	Nucleus. Cytoplasm. Note=Localized in cytoplasmic mRNP granules containing untranslated mRNAs.

Background

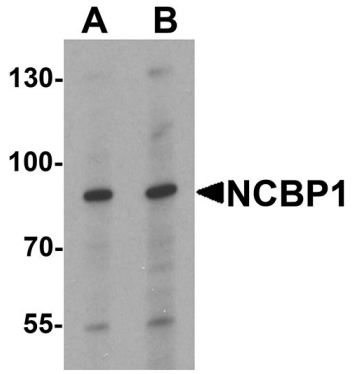
NCBP1 Antibody: NCBP1, also known as CBP80, is a component of the nuclear cap-binding protein complex (CBC), which binds to the monomethylated 5' cap of nascent pre-mRNA in the nucleoplasm. NCBP1 promotes high-affinity mRNA-cap binding and associates with the CTD of RNA polymerase II. The CBC promotes pre-mRNA splicing, 3'-end processing, RNA nuclear export, and nonsense-mediated mRNA decay (1,2). Recent evidence has shown that cellular-cap-binding proteins such as NCBP1 associate with influenza virus mRNAs, suggesting that these viral mRNAs may follow the normal cellular pathways for splicing, nuclear export, and translation (3).

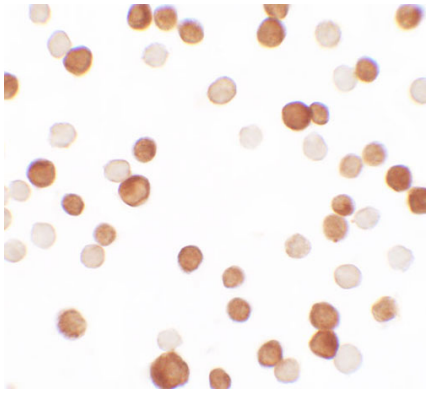
References

Ohno M, Kataoka N, and Shimura Y. A nuclear cap binding protein from HeLa cells. Nuc. Acid Res. 1990; 18:6989-95.
Maquat LE, Hwang J, Sato H, et al. CBP80-promoted mRNP rearrangements during the pioneer round of translation, nonsense-mediated mRNA decay, and thereafter. Cold Spring Harbor Symp. Quant. Biol. 2010; 75:127-34.
Bier K, York A, and Fodor E. Cellular cap-binding proteins associate with influenza virus mRNAs. J. Gen. Virol. 92:1627-34.

Images

Western blot analysis of NCBP1 in HeLa cell lysate with NCBP1 antibody at (A) 1 and (B) 2 µg/mL.





Immunocytochemistry of NCBP1 in HeLa cells with NCBP1 antibody at 2.5 µg/ml.