

CBP80 (G-4): sc-271305

BACKGROUND

In eukaryotes, the majority of mRNAs have an m⁷G cap, which is added cotranscriptionally and plays a critical role in many aspects of mRNA metabolism. The effect of the cap on translation is mediated by the initiation factor eIF-4F, whereas the effect on pre-mRNA splicing involves a nuclear complex (CBC). CBC consists of two cap binding proteins CBP20 and CBP80, which mediate the stimulatory functions of the cap in pre-mRNA splicing, 3' end formation and U snRNA export. The genes CBC1 and CBC2 encode CBP80 and CBP20, respectively. CBP80 comprises three domains, each containing a MIF4G domain. CBP20 has an RNAP fold and associates with the second and third domains of CBP80. CBP also plays a role in nonsense-mediated decay (NMD), which eliminates mRNAs, which prematurely terminate translation. CBP80-bound mRNA undergoes a "pioneer" round of translation before CBP80-CBP20 are replaced by eIF4E, and Upf2 and Upf3 proteins.

REFERENCES

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- Das, B., Guo, Z., Russo, P., Chartrand, P. and Sherman, F. 2000. The role of nuclear cap binding protein Cbc1p of yeast in mRNA termination and degradation. *Mol. Cell. Biol.* 20: 2827-2838.
- Mazza, C., Ohno, M., Segref, A., Mattaj, I.W. and Cusack, S. 2001. Crystal structure of the human nuclear cap binding complex. *Mol. Cell* 8: 383-396.
- McKendrick, L., Thompson, E., Ferreira, J., Morley, S.J. and Lewis, J.D. 2001. Interaction of eukaryotic translation initiation factor 4G with the nuclear cap-binding complex provides a link between nuclear and cytoplasmic functions of the m⁷ guanosine cap. *Mol. Cell. Biol.* 21: 3632-3641.
- Ishigaki, Y., Li, X., Serin, G. and Maquat, L.E. 2001. Evidence for a pioneer round of mRNA translation: mRNAs subject to nonsense-mediated decay in mammalian cells are bound by CBP80 and CBP20. *Cell* 106: 607-617.

CHROMOSOMAL LOCATION

Genetic locus: NCBP1 (human) mapping to 9q22.33; Ncbp1 (mouse) mapping to 4 B1.

SOURCE

CBP80 (G-4) is a mouse monoclonal antibody raised against amino acids 21-320 mapping at the N-terminus of CBP80 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-271305 X, 200 µg/0.1 ml.

APPLICATIONS

CBP80 (G-4) is recommended for detection of CBP80 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CBP80 siRNA (h): sc-43669, CBP80 siRNA (m): sc-60012, CBP80 shRNA Plasmid (h): sc-43669-SH, CBP80 shRNA Plasmid (m): sc-60012-SH, CBP80 shRNA (h) Lentiviral Particles: sc-43669-V and CBP80 shRNA (m) Lentiviral Particles: sc-60012-V.

CBP80 (G-4) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

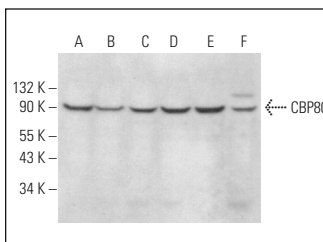
Molecular Weight of CBP80: 80 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, MCF7 whole cell lysate: sc-2206 or Jurkat nuclear extract: sc-2132.

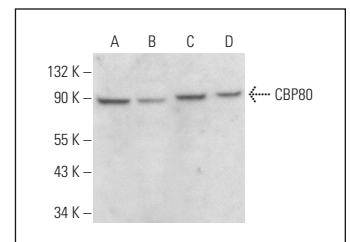
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CBP80 (G-4): sc-271305. Western blot analysis of CBP80 expression in HeLa (A), A549 (B), F9 (C), Neuro-2A (D), NIH/3T3 (E) and KNRK (F) whole cell lysates.



CBP80 (G-4): sc-271305. Western blot analysis of CBP80 expression in HL-60 (A) and MCF7 (B) whole cell lysates and Jurkat (C) and HeLa (D) nuclear extracts.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.