

CPEB1 Antibody

Catalog # ASC10725

Product Information

Application	WB, E
Primary Accession	Q9BZB8
Other Accession	Q9BZB8 , 74762720
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	62595
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	CPEB1 antibody can be used for detection of CPEB1 by Western blot at 1 - 2 μ g/mL.

Additional Information

Gene ID	64506
Other Names	Cytoplasmic polyadenylation element-binding protein 1, CPE-BP1, CPE-binding protein 1, h-CEBP, hCPEB-1, CPEB1, CPEB
Target/Specificity	CPEB1;
Reconstitution & Storage	CPEB1 antibody can be stored at 4°C for three months and -20°C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	CPEB1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CPEB1
Synonyms	CPEB
Function	Sequence-specific RNA-binding protein that regulates mRNA cytoplasmic polyadenylation and translation initiation during oocyte maturation, early development and at postsynapse sites of neurons. Binds to the cytoplasmic polyadenylation element (CPE), an uridine-rich sequence element (consensus sequence 5'-UUUUUAU-3') within the mRNA 3'-UTR. RNA binding results in a clear conformational change analogous to the Venus fly trap mechanism (PubMed: 24990967). In absence of phosphorylation and in association with TACC3 is also involved as a repressor of translation of CPE-containing mRNA;

a repression that is relieved by phosphorylation or degradation (By similarity). Involved in the transport of CPE-containing mRNA to dendrites; those mRNAs may be transported to dendrites in a translationally dormant form and translationally activated at synapses (By similarity). Its interaction with APLP1 promotes local CPE-containing mRNA polyadenylation and translation activation (By similarity). Induces the assembly of stress granules in the absence of stress. Required for cell cycle progression, specifically for prophase entry (PubMed:[26398195](#)).

Cellular Location

Cytoplasm. Nucleus Cytoplasm, P-body. Cytoplasmic granule. Synapse. Membrane. Postsynaptic density. Cell projection, dendrite Note=Continuously shuttling between nucleus and cytoplasm (PubMed:18923137). Also found in stress granules. Recruited to stress granules (SGs) upon arsenite treatment. In dendrites (By similarity) Localizes in synaptosomes at dendritic synapses of neurons (By similarity). Strongly enriched in postsynaptic density (PSD) fractions (By similarity). Transported into dendrites in a microtubule-dependent fashion and colocalizes in mRNA-containing particles with TACC3, dynein and kinesin (By similarity). Membrane-associated (By similarity) Colocalizes at excitatory synapses with members of the polyadenylation and translation complex factors (CPSF, APLP1, TACC3, AURKA, SYP, etc.) including CPE-containing RNAs (By similarity). {ECO:0000250, ECO:0000269 | PubMed:18923137}

Tissue Location

Isoform 1 is expressed in immature oocytes, ovary, brain and heart. Isoform 2 is expressed in brain and heart. Isoform 3 and isoform 4 are expressed in brain. Expressed in breast tumors and several tumor cell lines.

Background

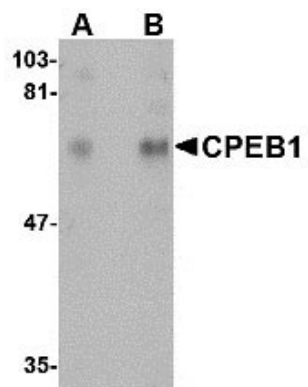
CPEB1 Antibody: CPEB1 is an RNA binding protein that contains an RNA-recognition motif and a zinc finger-containing region found in a wide range of vertebrates and invertebrates. CPEB1 forms the nucleus of a complex of factors that regulate poly(A) elongation and promotes polyadenylation-induced translation. CPEB1 mediates many diverse biological processes such as germ cell development, cell division and senescence, and synaptic plasticity. Recently, it was discovered that CPEB1 is involved in beta-catenin mRNA translation and cell migration in astrocytes as well as regulating hypoxia-inducible factor (HIF)-1 expression, demonstrating the wide range of processes in which CPEB1 plays a role. At least four isoforms of CPEB1 are known to exist.

References

- Richter JD. CPEB: a life in translation. Trends in Biochem. Sci.2007; 32:179-85.
- Jones KJ, Korb E, Kundel MA, et al. CPEB1 regulates beta-catenin mRNA translation and cell migration in astrocytes. Glia2008; 56:1401-13.
- Hagele S, Kuhn U, Boning M, et al. Cytoplasmic polyadenylation element binding protein (CPEB)1 and 2 bind to the HIF-1alpha mRNA 3'UTR and modulate HIF-1 alpha protein expression. Biochem. J.2008; epub.

Images

Western blot analysis of CPEB1 in rat brain tissue lysate with CPEB1 antibody at (A) 1 and (B) 2 µg/mL.



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