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RBBP8 Antibody

Catalog # ASC11133

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q99708
Other Accession	NP_976037, 42718017
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	101942
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	RBBP8 antibody can be used for detection of RBBP8 by Western blot at 1 - 2 g/mL. Antibody can also be used for immunohistochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	5932
Other Names	DNA endonuclease RBBP8, 3.1.-.-, CtBP-interacting protein, CtIP, Retinoblastoma-binding protein 8, RBBP-8, Retinoblastoma-interacting protein and myosin-like, RIM, Sporulation in the absence of SPO11 protein 2 homolog, SAE2, RBBP8, CTIP
Target/Specificity	RBBP8;
Reconstitution & Storage	RBBP8 antibody can be stored at 4℃ for three months and -20℃, 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	RBBP8 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RBBP8
Synonyms	CTIP
Function	Endonuclease that cooperates with the MRE11-RAD50-NBN (MRN) complex in DNA-end resection, the first step of double-strand break (DSB) repair through the homologous recombination (HR) pathway (PubMed:17965729, PubMed:19202191, PubMed:19759395, PubMed:20064462, PubMed:23273981, PubMed:26721387, PubMed:27814491,

	PubMed:27889449, PubMed:30787182). HR is restricted to S and G2 phases of the cell cycle and preferentially repairs DSBs resulting from replication fork collapse (PubMed:17965729, PubMed:19202191, PubMed:23273981, PubMed:27814491, PubMed:27889449, PubMed:30787182). Key determinant of DSB repair pathway choice, as it commits cells to HR by preventing classical non-homologous end-joining (NHEJ) (PubMed:19202191). Specifically promotes the endonuclease activity of the MRN complex to clear DNA ends containing protein adducts: recruited to DSBs by NBN following phosphorylation by CDK1, and promotes the endonuclease activity of MRE11 to clear protein-DNA adducts and generate clean double-strand break ends (PubMed:27814491, PubMed:27889449, PubMed:30787182, PubMed:33836577). Functions downstream of the MRN complex and ATM, promotes ATR activation and its recruitment to DSBs in the S/G2 phase facilitating the generation of ssDNA (PubMed:16581787, PubMed:17965729, PubMed:19759395, PubMed:20064462). Component of the BRCA1-RBBP8 complex that regulates CHEK1 activation and controls cell cycle G2/M checkpoints on DNA damage (PubMed:15485915, PubMed:16818604). During immunoglobulin heavy chain class-switch recombination, promotes microhomology-mediated alternative end joining (A-NHEJ) and plays an essential role in chromosomal translocations (By similarity). Binds preferentially to DNA Y-junctions and to DNA substrates with blocked ends and promotes intermolecular DNA bridging (PubMed:30601117).
Cellular Location	Nucleus. Chromosome Note=Associates with sites of DNA damage in S/G2 phase (PubMed:10764811, PubMed:25349192). Recruited to DSBs by the MRE11- RAD50-NBN (MRN) complex following phosphorylation by CDK1, which promotes interaction with NBN (PubMed:27814491, PubMed:27889449, PubMed:33836577). Ubiquitinated RBBP8 binds to chromatin following DNA damage (PubMed:16818604).
Tissue Location	Expressed in ER-positive breast cancer lines, but tends to be down-regulated ER-negative cells (at protein level)

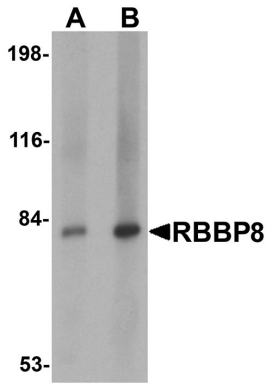
Background

RBBP8 Antibody: RBBP8, also known as CtBP (carboxy-terminal binding protein) interacting protein (CTIP), was characterized for its role in transcription as a cofactor for the transcriptional repressor CtBP, and also as a binding partner for other proteins including the cell cycle regulators retinoblastoma protein (Rb) and breast cancer 1 (BRCA1). It is ubiquitously expressed and localizes to the nucleus. RBBP8 is thought to modulate the functions in cell proliferation, transcriptional regulation and DNA repair. RBBP8 also plays a central role in the cell cycle checkpoint response to DNA double-stranded breaks (DSBs), with new evidence demonstrating that it controls the choice of DSB repair pathway.

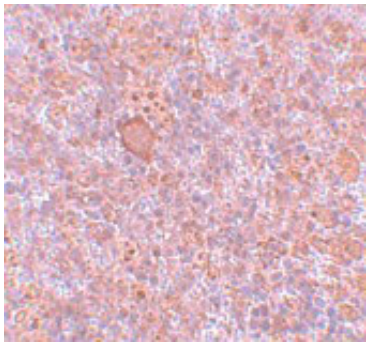
References

Yu X, Wu LC, Bowcock AM, et al. The C-terminal (BRCT) domains of BRCA1 interact in vivo with CtIP, a protein implicated in the CtBP pathway of transcriptional repression. J. Biol. Chem.1998; 273:25388-92.
Liu F and Lee WH. CtIP activates its own and cyclin D1 promoters via the E2F/RB pathway during G1/S progression. Mol. Cell Biol.2006; 26:3124-34.
Sterner JM, Dew-Knight S, Musahl C, et al. Negative regulation of DNA replication by the retinoblastoma protein is mediated by its association with MCM7. Mol. Cell Biol.1998; 18:2748-57.
Wu G and Lee WH. CtIP, a multivalent adaptor connecting transcriptional regulation, checkpoint control and tumor suppression. Cell Cycle2006; 5:1592-6.

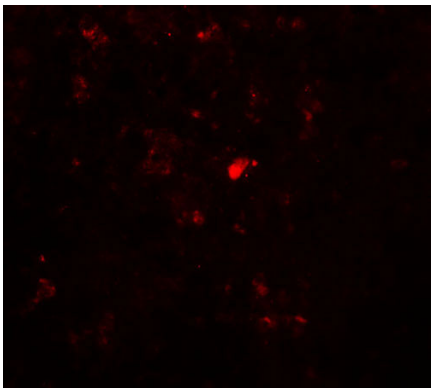
Images



Western blot analysis of RBBP8 in mouse spleen tissue lysate with RBBP8 antibody at (A) 1 and (B) 2 µg/mL.



Immunohistochemistry of RBBP8 in rat spleen tissue with RBBP8 antibody at 5 µg/mL.



Immunofluorescence of RBBP8 in rat spleen tissue with RBBP8 antibody at 20 µg/mL.