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Chk2 Antibody

Catalog # ASC10129

Product Information

Application	WB, ICC, E
Primary Accession	O96017
Other Accession	NP_009125, 6005850
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	60915
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	Chk2 antibody can be used for detection of Chk2 by Western blot at 1 g/mL. Antibody can also be used for immunocytochemistry starting at 1 g/mL.

Additional Information

Gene ID	11200
Other Names	Chk2 Antibody: CDS1, CHK2, LFS2, RAD53, hCds1, HuCds1, PP1425, CDS1, CHK2 checkpoint homolog, Hucds1, CHK2 checkpoint homolog (S. pombe)
Target/Specificity	CHEK2;
Reconstitution & Storage	Chk2 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	Chk2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CHEK2 (HGNC:16627)
Synonyms	CDS1, CHK2, RAD53
Function	Serine/threonine-protein kinase which is required for checkpoint-mediated cell cycle arrest, activation of DNA repair and apoptosis in response to the presence of DNA double-strand breaks. May also negatively regulate cell cycle progression during unperturbed cell cycles. Following activation, phosphorylates numerous effectors preferentially at the consensus sequence [L-X-R-X-X-S/T] (PubMed:37943659). Regulates cell cycle checkpoint arrest through phosphorylation of CDC25A, CDC25B and CDC25C, inhibiting their activity. Inhibition of CDC25 phosphatase activity leads to increased inhibitory

	tyrosine phosphorylation of CDK-cyclin complexes and blocks cell cycle progression. May also phosphorylate NEK6 which is involved in G2/M cell cycle arrest. Regulates DNA repair through phosphorylation of BRCA2, enhancing the association of RAD51 with chromatin which promotes DNA repair by homologous recombination. Also stimulates the transcription of genes involved in DNA repair (including BRCA2) through the phosphorylation and activation of the transcription factor FOXM1. Regulates apoptosis through the phosphorylation of p53/TP53, MDM4 and PML. Phosphorylation of p53/TP53 at 'Ser-20' by CHEK2 may alleviate inhibition by MDM2, leading to accumulation of active p53/TP53. Phosphorylation of MDM4 may also reduce degradation of p53/TP53. Also controls the transcription of pro-apoptotic genes through phosphorylation of the transcription factor E2F1. Tumor suppressor, it may also have a DNA damage-independent function in mitotic spindle assembly by phosphorylating BRCA1. Its absence may be a cause of the chromosomal instability observed in some cancer cells. Promotes the CCAR2-SIRT1 association and is required for CCAR2-mediated SIRT1 inhibition (PubMed:25361978). Under oxidative stress, promotes ATG7 ubiquitination by phosphorylating the E3 ubiquitin ligase TRIM32 at 'Ser-55' leading to positive regulation of the autophagosme assembly (PubMed:37943659).
Cellular Location	[Isoform 2]: Nucleus. Note=Isoform 10 is present throughout the cell [Isoform 7]: Nucleus. [Isoform 12]: Nucleus.
Tissue Location	High expression is found in testis, spleen, colon and peripheral blood leukocytes. Low expression is found in other tissues

Background

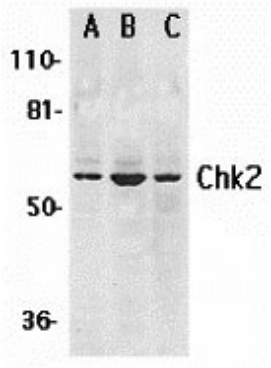
Chk2 Antibody: The p53 tumor-suppressor gene integrates numerous signals that control cell life and death. Several novel molecules involved in p53 signaling, including Chk2, p53R2, p53AIP1, Noxa, PIDD, and PID/MTA2, were recently discovered. The checkpoint kinase Chk2 is the mammalian homologue of yeast Cds1/Rad53. In response to DNA damage, the checkpoint kinase ATM phosphorylates and activates Chk2, which in turn directly phosphorylates and activates p53. Chk2 serves as ATM downstream effector to mediate activation of p53. Chk2 also phosphorylates and activates BRCA1, the product of a tumor suppressor gene that is mutated in breast and ovarian cancer.

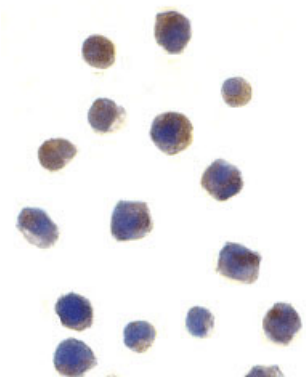
References

Matsuoka S, Huang M, and Elledge SJ. Linkage of ATM to cell cycle regulation by the Chk2 protein kinase. Science 1998; 282:1893-7.
Tanaka H, Arakawa H, Yamaguchi T, et al. A ribonucleotide reductase gene involved in a p53-dependent cell-cycle checkpoint for DNA damage. Nature 2000; 404:42-9.
Oda E, Ohki R, Murasawa H, et al. Noxa, a BH3-only member of the Bcl-2 family and candidate mediator of p53-induced apoptosis. Science 2000; 288:1053-8.
Oda K, Arakawa H, Tanaka T, et al. p53AIP1, a potential mediator of p53-dependent apoptosis, and its regulation by Ser-46-phosphorylated p53. Cell 2000;102:849-62.

Images

Western blot analysis of Chk2 expression in (A) K562, (B) Jurkat, and (C) HL-60 whole cell lysates with Chk2 antibody at 1 µg /ml.





Immunocytochemistry of Chk2 in Jurkat cells with Chk2 antibody at 1 µg/mL.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.