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KD-Validated Anti-Checkpoint kinase 2 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1175

Product Information

Application	WB, FC, ICC
Primary Accession	O96017
Reactivity	Human
Clonality	Monoclonal
Isotype	Rabbit IgG
Clone Names	23GB3460
Calculated MW	60915
Gene Name	CHEK2
Aliases	CHEK2; Checkpoint Kinase 2; CDS1; CHK2; PP1425; RAD53; Serine/Threonine-Protein Kinase Chk2; CHK2 Checkpoint Homolog; Cds1 Homolog; BA444G7; HuCds1; HCds1; CHK2 (Checkpoint, S.Pombe) Homolog; CHK2 Checkpoint Homolog (S. Pombe); Checkpoint-Like Protein CHK2; EC 2.7.11.1; EC 2.7.11 48; HUCDS1; Hucds1; LFS2
Immunogen	A synthesized peptide derived from human Chk2

Additional Information

Gene ID	11200
Other Names	Serine/threonine-protein kinase Chk2, 2.7.11.1, CHK2 checkpoint homolog, Cds1 homolog, Hucds1, hCds1, Checkpoint kinase 2, CHEK2 (HGNC:16627), CDS1, CHK2, RAD53

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

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