

CHK1 Antibody (C-term)
Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7401a

Specification

CHK1 Antibody (C-term) - Product Information

Application	WB, IHC-P,E
Primary Accession	O14757
Other Accession	O6DE87 , O91ZN7 , O35280 , O8AYC9
Reactivity	Human, Mouse
Predicted	Chicken, Rat, Xenopus
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Antigen Region	425-455

CHK1 Antibody (C-term) - Additional Information

Gene ID 1111

Other Names

Serine/threonine-protein kinase Chk1, CHK1 checkpoint homolog, Cell cycle checkpoint kinase, Checkpoint kinase-1, CHEK1, CHK1

Target/Specificity

This CHK1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 425-455 amino acids from the C-terminal region of human CHK1.

Dilution

WB~~1:2000

IHC-P~~N/A

E~~Use at an assay dependent concentration.

Format

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.

Storage

Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions

CHK1 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

CHK1 Antibody (C-term) - Protein Information

Name CHEK1

Synonyms CHK1

Function Serine/threonine-protein kinase which is required for checkpoint-mediated cell cycle arrest and activation of DNA repair in response to the presence of DNA damage or unreplicated DNA (PubMed:[11535615](#), PubMed:[12399544](#), PubMed:[12446774](#), PubMed:[14559997](#), PubMed:[14988723](#), PubMed:[15311285](#), PubMed:[15650047](#), PubMed:[15665856](#), PubMed:[32357935](#)). May also negatively regulate cell cycle progression during unperturbed cell cycles (PubMed:[11535615](#), PubMed:[12399544](#), PubMed:[12446774](#), PubMed:[14559997](#), PubMed:[14988723](#), PubMed:[15311285](#), PubMed:[15650047](#), PubMed:[15665856](#)). This regulation is achieved by a number of mechanisms that together help to preserve the integrity of the genome (PubMed:[11535615](#), PubMed:[12399544](#), PubMed:[12446774](#), PubMed:[14559997](#), PubMed:[14988723](#), PubMed:[15311285](#), PubMed:[15650047](#), PubMed:[15665856](#)). Recognizes the substrate consensus sequence [R-X-X- S/T] (PubMed:[11535615](#), PubMed:[12399544](#), PubMed:[12446774](#), PubMed:[14559997](#), PubMed:[14988723](#), PubMed:[15311285](#), PubMed:[15650047](#), PubMed:[15665856](#)). Binds to and phosphorylates CDC25A, CDC25B and CDC25C (PubMed:[12676583](#), PubMed:[12676925](#), PubMed:[12759351](#), PubMed:[14559997](#), PubMed:[14681206](#), PubMed:[19734889](#), PubMed:[9278511](#)). Phosphorylation of CDC25A at 'Ser-178' and 'Thr-507' and phosphorylation of CDC25C at 'Ser-216' creates binding sites for 14-3-3 proteins which inhibit CDC25A and CDC25C (PubMed:[9278511](#)). Phosphorylation of CDC25A at 'Ser-76', 'Ser-124', 'Ser-178', 'Ser-279' and 'Ser-293' promotes proteolysis of CDC25A (PubMed:[12676583](#), PubMed:[12676925](#), PubMed:[12759351](#), PubMed:[14681206](#), PubMed:[19734889](#), PubMed:[9278511](#)). Phosphorylation of CDC25A at 'Ser-76' primes the protein for subsequent phosphorylation at 'Ser-79', 'Ser-82' and 'Ser-88' by NEK11, which is required for polyubiquitination and degradation of CDC25A (PubMed:[19734889](#), PubMed:[20090422](#), PubMed:[9278511](#)). Inhibition of CDC25 leads to increased inhibitory tyrosine phosphorylation of CDK-cyclin complexes and blocks cell cycle progression (PubMed:[9278511](#)). Also phosphorylates NEK6 (PubMed:[18728393](#)). Binds to and phosphorylates RAD51 at 'Thr-309', which promotes the release of RAD51 from BRCA2 and enhances the association of RAD51 with chromatin, thereby promoting DNA repair by homologous recombination (PubMed:[15665856](#)). Phosphorylates multiple sites within the C-terminus of TP53, which promotes activation of TP53 by acetylation and promotes cell cycle arrest and suppression of cellular proliferation (PubMed:[10673501](#), PubMed:[15659650](#), PubMed:[16511572](#)). Also promotes repair of DNA cross-links through phosphorylation of FANCD1 (PubMed:[17296736](#)). Binds to and phosphorylates TLK1 at 'Ser-743', which prevents the TLK1-dependent phosphorylation of the chromatin assembly factor ASF1A (PubMed:[12660173](#), PubMed:[12955071](#)). This may enhance chromatin assembly both in the presence or absence of DNA damage (PubMed:[12660173](#), PubMed:[12955071](#)). May also play a role in replication fork maintenance through regulation of PCNA (PubMed:[18451105](#)). May regulate the transcription of genes that regulate cell-cycle progression through the phosphorylation of histones (By similarity). Phosphorylates histone H3.1 (to form H3T11ph), which leads to epigenetic inhibition of a subset of genes (By similarity). May also phosphorylate RB1 to promote its interaction with the E2F family of transcription factors and subsequent cell cycle arrest (PubMed:[17380128](#)). Phosphorylates SPRTN, promoting SPRTN recruitment to chromatin (PubMed:[31316063](#)). Reduces replication stress and activates the G2/M checkpoint, by phosphorylating and inactivating PABIR1/FAM122A and promoting the serine/threonine-protein phosphatase 2A-mediated dephosphorylation and stabilization of WEE1 levels and activity (PubMed:[33108758](#)).

Cellular Location

Nucleus. Chromosome. Cytoplasm Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Note=Nuclear export is mediated at least in part by XPO1/CRM1 (PubMed:[12676962](#)). Also localizes to the centrosome specifically during interphase, where it may protect centrosomal CDC2 kinase from inappropriate activation by cytoplasmic CDC25B (PubMed:[15311285](#)). Proteolytic cleavage at the C-terminus by SPRTN promotes removal from chromatin (PubMed:[31316063](#))

Tissue Location

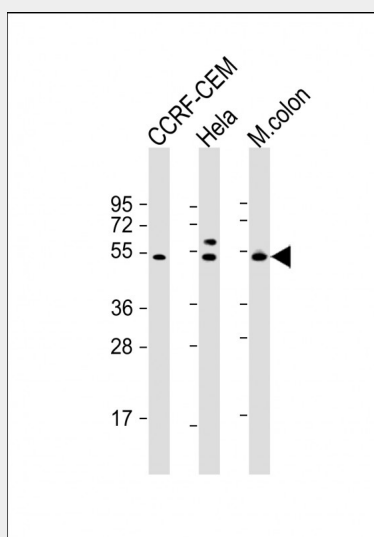
Expressed ubiquitously with the most abundant expression in thymus, testis, small intestine and colon

CHK1 Antibody (C-term) - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

CHK1 Antibody (C-term) - Images



All lanes : Anti-CHK1 Antibody (D440) at 1:2000 dilution Lane 1: CCRF-CEM whole cell lysate Lane 2: HeLa whole cell lysate Lane 3: mouse colon lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 54 kDa Blocking/Dilution buffer: 5% NFDN/TBST.

CHK1 Antibody (C-term) - Background

Checkpoint pathways control the order and timing of cell cycle transitions and ensure that critical events, such as DNA replication and chromosome segregation, are completed with high fidelity. Antibodies against CHK1 recognize a 54-kD protein on immunoblots of mammalian cell extracts, but the protein has altered mobility when isolated from cells treated with ionizing radiation (IR), indicating that CHK1 is modified in response to DNA damage. In vitro, CHK1 directly phosphorylates a regulator of CDC2 tyrosine phosphorylation, CDC25C. Evidence indicates that in response to DNA damage, CHK1 phosphorylates and inhibits CDC25C, thus preventing activation of the CDC2-cyclin B complex and mitotic entry. Proteolysis of activated CHK1 may promote checkpoint termination under normal conditions and may play a role in the cytotoxic effects of camptothecin and related anticancer drugs.

CHK1 Antibody (C-term) - References

Chen, M.S., et al., Mol. Cell. Biol. 23(21):7488-7497 (2003).
Krause, D.R., et al., Oncogene 22(38):5927-5937 (2003).

Wang, X., et al., J. Biol. Chem. 278(33):30869-30874 (2003).
Goudelock, D.M., et al., J. Biol. Chem. 278(32):29940-29947 (2003).
Xiao, Z., et al., J. Biol. Chem. 278(24):21767-21773 (2003).