

CHEK1 Antibody (Center S296)
Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP20427c

Specification

CHEK1 Antibody (Center S296) - Product Information

Application	WB,E
Primary Accession	O14757
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	54434
Antigen Region	274-302

CHEK1 Antibody (Center S296) - 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 CHEK1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 274-302 amino acids from the Central region of human CHEK1.

Dilution

WB~~1:1000

E~~Use at an assay dependent concentration.

Format

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.

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

CHEK1 Antibody (Center S296) is for research use only and not for use in diagnostic or therapeutic procedures.

CHEK1 Antibody (Center S296) - 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

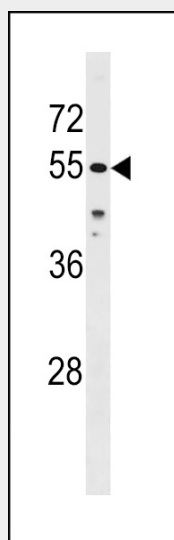
Expressed ubiquitously with the most abundant expression in thymus, testis, small intestine and colon

CHEK1 Antibody (Center S296) - 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](#)

CHEK1 Antibody (Center S296) - Images



CHEK1 Antibody (Center S296) (Cat. #AP20427c) western blot analysis in HepG2 cell line lysates (35ug/lane). This demonstrates the CHEK1 antibody detected the CHEK1 protein (arrow).

CHEK1 Antibody (Center S296) - Background

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. May also negatively regulate cell cycle progression during unperturbed cell cycles. This regulation is achieved by a number of mechanisms that together help to preserve the integrity of the genome. Recognizes the substrate consensus sequence [R-X-X-S/T]. Binds to and phosphorylates CDC25A, CDC25B and CDC25C. 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. Phosphorylation of CDC25A at 'Ser-76', 'Ser-124', 'Ser-178', 'Ser-279' and 'Ser-293' promotes proteolysis of CDC25A. 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. Inhibition of CDC25 leads to increased inhibitory tyrosine phosphorylation of CDK-cyclin complexes and blocks cell cycle progression. Also phosphorylates NEK6. 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. 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. Also promotes repair of DNA cross-links through phosphorylation of FANCE. Binds to and phosphorylates TLK1 at 'Ser-743', which prevents the TLK1-dependent phosphorylation

of the chromatin assembly factor ASF1A. This may enhance chromatin assembly both in the presence or absence of DNA damage. May also play a role in replication fork maintenance through regulation of PCNA. May regulate the transcription of genes that regulate cell-cycle progression through the phosphorylation of histones. Phosphorylates histone H3.1 (to form H3T11ph), which leads to epigenetic inhibition of a subset of genes. May also phosphorylate RB1 to promote its interaction with the E2F family of transcription factors and subsequent cell cycle arrest. Isoform 2: Endogenous repressor of isoform 1, interacts with, and antagonizes CHK1 to promote the S to G2/M phase transition.