

# Phospho-Chk1 (S296) Antibody

Rabbit mAb

Catalog # AP90680

## Product Information

<b>Application</b>	WB
<b>Primary Accession</b>	<a href="#">O14757</a>
<b>Reactivity</b>	Human
<b>Clonality</b>	Monoclonal
<b>Other Names</b>	Checkpoint, S. pombe, homolog of, 1; CHEK1; CHK1; CHK1 checkpoint homolog (S. pombe); Serine/threonine-protein kinase Chk1;
<b>Isotype</b>	Rabbit IgG
<b>Host</b>	Rabbit
<b>Calculated MW</b>	54434

## Additional Information

<b>Dilution</b>	WB 1:500~1:2000
<b>Purification</b>	Affinity-chromatography
<b>Immunogen</b>	A synthesized peptide derived from human Phospho-Chk1 (S296)
<b>Description</b>	Chk1 kinase acts downstream of ATM/ATR kinase and plays an important role in DNA damage checkpoint control, embryonic development, and tumor suppression. Activation of Chk1 involves phosphorylation at Ser317 and Ser345 by ATM/ATR, followed by autophosphorylation of Ser296. Activation occurs in response to blocked DNA replication and certain forms of genotoxic stress.
<b>Storage Condition and Buffer</b>	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.

## Protein Information

<b>Name</b>	CHEK1
<b>Synonyms</b>	CHK1
<b>Function</b>	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: <a href="#">11535615</a> , PubMed: <a href="#">12399544</a> , PubMed: <a href="#">12446774</a> , PubMed: <a href="#">14559997</a> , PubMed: <a href="#">14988723</a> , PubMed: <a href="#">15311285</a> , PubMed: <a href="#">15650047</a> , PubMed: <a href="#">15665856</a> , PubMed: <a href="#">32357935</a> ). May also negatively regulate cell cycle progression during unperturbed cell cycles (PubMed: <a href="#">11535615</a> , PubMed: <a href="#">12399544</a> , PubMed: <a href="#">12446774</a> , PubMed: <a href="#">14559997</a> , PubMed: <a href="#">14988723</a> , PubMed: <a href="#">15311285</a> , PubMed: <a href="#">15650047</a> , PubMed: <a href="#">15665856</a> ). 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 FANCE (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](#)).

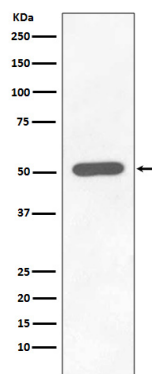
#### Cellular Location

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

#### Images



Western blot analysis of Phospho-Chk1 (S296) expression in HEK293 cell lysate Treated with Calyculin.

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