

**CHEK1 / CHK1 Antibody**  
**Rabbit Polyclonal Antibody**  
**Catalog # ALS16838****Specification**

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**CHEK1 / CHK1 Antibody - Product Information**

Application	<b>IHC, WB</b>
Primary Accession	<a href="#">O14757</a>
Other Accession	<a href="#">1111</a>
Reactivity	<b>Human</b>
Host	<b>Rabbit</b>
Clonality	<b>Polyclonal</b>
Isotype	<b>IgG</b>
Calculated MW	<b>54434</b>

**CHEK1 / CHK1 Antibody - Additional Information****Gene ID** 1111**Other Names**

CHEK1, CHK1 checkpoint homolog, Cell cycle checkpoint kinase, Checkpoint kinase 1, CHK1, Chk1-S, Protein kinase chk1, Checkpoint kinase-1

**Reconstitution & Storage**

PBS, pH 7.4, 0.02% sodium azide. Store at -20°C for up to one year.

**Precautions**

CHEK1 / CHK1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

**CHEK1 / CHK1 Antibody - 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](http://www.uniprot.org/citations/11535615)), PubMed: [12399544](http://www.uniprot.org/citations/12399544), PubMed: [12446774](http://www.uniprot.org/citations/12446774), PubMed: [14559997](http://www.uniprot.org/citations/14559997), PubMed: [14988723](http://www.uniprot.org/citations/14988723), PubMed: [15311285](http://www.uniprot.org/citations/15311285), PubMed: [15650047](http://www.uniprot.org/citations/15650047), PubMed: [15665856](http://www.uniprot.org/citations/15665856), PubMed: [32357935](http://www.uniprot.org/citations/32357935)).

May also negatively regulate cell cycle progression during unperturbed cell cycles (PubMed:<a href="http://www.uniprot.org/citations/11535615" target="\_blank">11535615</a>, PubMed:<a href="http://www.uniprot.org/citations/12399544" target="\_blank">12399544</a>, PubMed:<a href="http://www.uniprot.org/citations/12446774" target="\_blank">12446774</a>, PubMed:<a href="http://www.uniprot.org/citations/14559997" target="\_blank">14559997</a>, PubMed:<a href="http://www.uniprot.org/citations/14988723" target="\_blank">14988723</a>, PubMed:<a href="http://www.uniprot.org/citations/15311285" target="\_blank">15311285</a>, PubMed:<a href="http://www.uniprot.org/citations/15650047" target="\_blank">15650047</a>, PubMed:<a href="http://www.uniprot.org/citations/15665856" target="\_blank">15665856</a>). This regulation is achieved by a number of mechanisms that together help to preserve the integrity of the genome (PubMed:<a href="http://www.uniprot.org/citations/11535615" target="\_blank">11535615</a>, PubMed:<a href="http://www.uniprot.org/citations/12399544" target="\_blank">12399544</a>, PubMed:<a href="http://www.uniprot.org/citations/12446774" target="\_blank">12446774</a>, PubMed:<a href="http://www.uniprot.org/citations/14559997" target="\_blank">14559997</a>, PubMed:<a href="http://www.uniprot.org/citations/14988723" target="\_blank">14988723</a>, PubMed:<a href="http://www.uniprot.org/citations/15311285" target="\_blank">15311285</a>, PubMed:<a href="http://www.uniprot.org/citations/15650047" target="\_blank">15650047</a>, PubMed:<a href="http://www.uniprot.org/citations/15665856" target="\_blank">15665856</a>). Recognizes the substrate consensus sequence [R-X-X- S/T] (PubMed:<a href="http://www.uniprot.org/citations/11535615" target="\_blank">11535615</a>, PubMed:<a href="http://www.uniprot.org/citations/12399544" target="\_blank">12399544</a>, PubMed:<a href="http://www.uniprot.org/citations/12446774" target="\_blank">12446774</a>, PubMed:<a href="http://www.uniprot.org/citations/14559997" target="\_blank">14559997</a>, PubMed:<a href="http://www.uniprot.org/citations/14988723" target="\_blank">14988723</a>, PubMed:<a href="http://www.uniprot.org/citations/15311285" target="\_blank">15311285</a>, PubMed:<a href="http://www.uniprot.org/citations/15650047" target="\_blank">15650047</a>, PubMed:<a href="http://www.uniprot.org/citations/15665856" target="\_blank">15665856</a>). Binds to and phosphorylates CDC25A, CDC25B and CDC25C (PubMed:<a href="http://www.uniprot.org/citations/12676583" target="\_blank">12676583</a>, PubMed:<a href="http://www.uniprot.org/citations/12676925" target="\_blank">12676925</a>, PubMed:<a href="http://www.uniprot.org/citations/12759351" target="\_blank">12759351</a>, PubMed:<a href="http://www.uniprot.org/citations/14559997" target="\_blank">14559997</a>, PubMed:<a href="http://www.uniprot.org/citations/14681206" target="\_blank">14681206</a>, PubMed:<a href="http://www.uniprot.org/citations/19734889" target="\_blank">19734889</a>, PubMed:<a href="http://www.uniprot.org/citations/9278511" target="\_blank">9278511</a>). 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:<a href="http://www.uniprot.org/citations/9278511" target="\_blank">9278511</a>). Phosphorylation of CDC25A at 'Ser-76', 'Ser-124', 'Ser-178', 'Ser-279' and 'Ser-293' promotes proteolysis of CDC25A (PubMed:<a href="http://www.uniprot.org/citations/12676583" target="\_blank">12676583</a>, PubMed:<a href="http://www.uniprot.org/citations/12676925" target="\_blank">12676925</a>, PubMed:<a href="http://www.uniprot.org/citations/12759351" target="\_blank">12759351</a>, PubMed:<a href="http://www.uniprot.org/citations/14681206" target="\_blank">14681206</a>, PubMed:<a href="http://www.uniprot.org/citations/19734889" target="\_blank">19734889</a>, PubMed:<a href="http://www.uniprot.org/citations/9278511" target="\_blank">9278511</a>). 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:<a href="http://www.uniprot.org/citations/19734889" target="\_blank">19734889</a>, PubMed:<a href="http://www.uniprot.org/citations/20090422" target="\_blank">20090422</a>, PubMed:<a href="http://www.uniprot.org/citations/9278511" target="\_blank">9278511</a>). Inhibition of CDC25 leads to increased inhibitory tyrosine phosphorylation of CDK-cyclin complexes and blocks cell cycle progression (PubMed:<a href="http://www.uniprot.org/citations/9278511" target="\_blank">9278511</a>). Also phosphorylates NEK6 (PubMed:<a href="http://www.uniprot.org/citations/18728393" target="\_blank">18728393</a>). 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:<a href="http://www.uniprot.org/citations/15665856" target="\_blank">15665856</a>). 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:<a href="http://www.uniprot.org/citations/10673501" target="\_blank">10673501</a>, PubMed:<a href="http://www.uniprot.org/citations/15659650" target="\_blank">15659650</a>, PubMed:<a href="http://www.uniprot.org/citations/16511572" target="\_blank">16511572</a>). Also promotes repair of DNA cross-links through phosphorylation of FANCE (PubMed:<a href="http://www.uniprot.org/citations/17296736" target="\_blank">17296736</a>). Binds to and phosphorylates TLK1 at 'Ser-743', which prevents the TLK1-dependent phosphorylation of the chromatin assembly factor ASF1A (PubMed:<a href="http://www.uniprot.org/citations/12660173" target="\_blank">12660173</a>, PubMed:<a href="http://www.uniprot.org/citations/12955071" target="\_blank">12955071</a>). This may enhance chromatin assembly both in the presence or absence of DNA damage (PubMed:<a href="http://www.uniprot.org/citations/12660173" target="\_blank">12660173</a>, PubMed:<a href="http://www.uniprot.org/citations/12955071" target="\_blank">12955071</a>). May also play a role in replication fork maintenance through regulation of PCNA (PubMed:<a href="http://www.uniprot.org/citations/18451105" target="\_blank">18451105</a>). 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:<a href="http://www.uniprot.org/citations/17380128" target="\_blank">17380128</a>). Phosphorylates SPRTN, promoting SPRTN recruitment to chromatin (PubMed:<a href="http://www.uniprot.org/citations/31316063" target="\_blank">31316063</a>). 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:<a href="http://www.uniprot.org/citations/33108758" target="\_blank">33108758</a>).

#### 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

#### Volume

50 µl

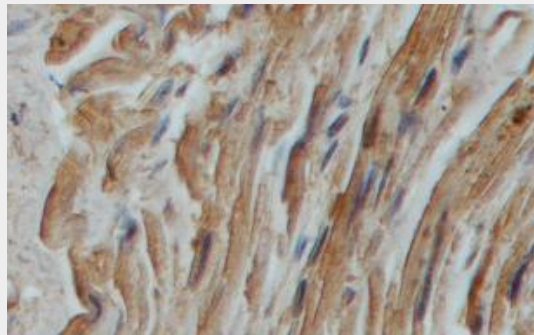
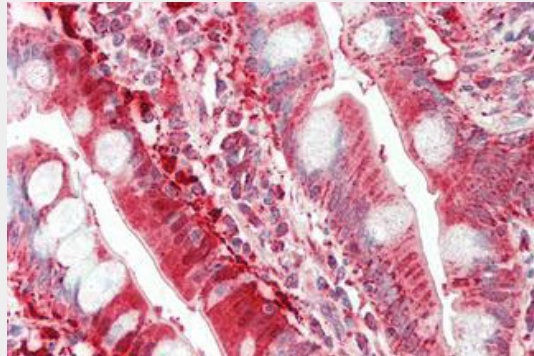
### CHEK1 / CHK1 Antibody - Protocols

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

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

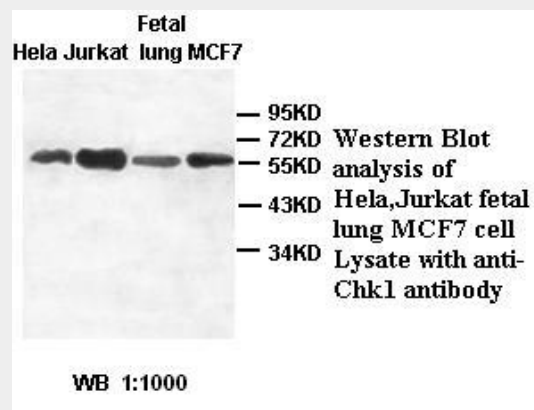
- [Cell Culture](#)

## CHEK1 / CHK1 Antibody - Images



Immunohistochemical staining of formalin-fixed paraffin-embedded fetal heart showing Cytoplasmic and Nuclear staining with anti-Chk1 antibody at a dilution of 1/100.

Immunohistochemical staining of formalin-fixed paraffin-embedded fetal heart showing Cytoplasmic and Nuclear staining with anti-Chk1 antibody at a dilution of 1/100



western blot analysis of heLa, jurkat fetal lung mcf7 cell lysate with anti-chk1 antibody

## CHEK1 / CHK1 Antibody - Background

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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.

#### **CHEK1 / CHK1 Antibody - References**

- Sanchez Y., et al. *Science* 277:1497-1501(1997).  
Flaggs G., et al. *Curr. Biol.* 7:977-986(1997).  
Semba S., et al. *Int. J. Oncol.* 16:731-737(2000).  
Pabla N., et al. *Proc. Natl. Acad. Sci. U.S.A.* 109:197-202(2012).  
Ota T., et al. *Nat. Genet.* 36:40-45(2004).