

Phospho-CHEK1(S317) Antibody Blocking peptide
Synthetic peptide
Catalog # BP3070a**Specification**

Phospho-CHEK1(S317) Antibody Blocking peptide - Product InformationPrimary Accession [O14757](#)**Phospho-CHEK1(S317) Antibody Blocking peptide - Additional Information****Gene ID** 1111**Other Names**

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

Target/Specificity

The synthetic peptide sequence used to generate the antibody [AP3070a](/product/products/AP3070a) was selected from the 310-324 region of human Phospho-CHEK1-S317. A 10 to 100 fold molar excess to antibody is recommended. Precise conditions should be optimized for a particular assay.

Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

Phospho-CHEK1(S317) Antibody Blocking peptide - 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: [12446774](http://www.uniprot.org/citations/12446774), PubMed: [12399544](http://www.uniprot.org/citations/12399544), 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: [15665856](http://www.uniprot.org/citations/15665856)),

PubMed:15650047, PubMed:32357935). May also negatively regulate cell cycle progression during unperturbed cell cycles (PubMed:11535615, PubMed:12446774, PubMed:12399544, PubMed:14559997, PubMed:14988723, PubMed:15311285, PubMed:15665856, PubMed:15650047). This regulation is achieved by a number of mechanisms that together help to preserve the integrity of the genome (PubMed:11535615, PubMed:12446774, PubMed:12399544, PubMed:14559997, PubMed:14988723, PubMed:15311285, PubMed:15665856, PubMed:15650047). Recognizes the substrate consensus sequence [R-X-X- S/T] (PubMed:11535615, PubMed:12446774, PubMed:12399544, PubMed:14559997, PubMed:14988723, PubMed:15311285, PubMed:15665856, PubMed:15650047). Binds to and phosphorylates CDC25A, CDC25B and CDC25C (PubMed:9278511, PubMed:12676583, PubMed:14681206, PubMed:12676925, PubMed:12759351, PubMed:19734889, PubMed:14559997). 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:9278511, PubMed:12676583, PubMed:14681206, PubMed:12676925, PubMed:12759351, PubMed:19734889). 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:9278511, PubMed:19734889, PubMed:20090422). 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

Phospho-CHK1(S317) Antibody Blocking peptide - Protocols

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

- [Blocking Peptides](#)

Phospho-CHK1(S317) Antibody Blocking peptide - Images

Phospho-CHK1(S317) Antibody Blocking peptide - 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. The *S. pombe* Chk1 gene encodes a protein kinase that is required for the DNA damage checkpoint. Antibodies against CHK1 recognized a 54-kD protein on immunoblots of mammalian cell extracts.

However,CHK1 is modified in response to DNA damage. In vitro, CHK1 directly phosphorylated a regulator of CDC2 tyrosine phosphorylation, CDC25C. In response to DNA damage, CHK1 phosphorylates and inhibits CDC25C, thus preventing activation of the CDC2-cyclin B complex and mitotic entry. CHK1 directly phosphorylates CDC25A during an unperturbed cell cycle, and that phosphorylation of CDC25A by CHK1 is required for cells to delay cell cycle progression in response to double-strand DNA breaks.

Phospho-CHK1(S317) Antibody Blocking peptide - References

Kramer, A., et al., Nat. Cell Biol. 6(9):884-891 (2004).Xu, X., et al., J. Biol. Chem. 279(33):34091-34094 (2004).Ng, C.P., et al., J. Biol. Chem. 279(10):8808-8819 (2004).Chen, M.S., et al., Mol. Cell. Biol. 23(21):7488-7497 (2003).Groth, A., et al., EMBO J. 22(7):1676-1687 (2003).