

Chk1-S280 Phospho Peptide
Synthetic Peptide
Catalog # SP2054a**Specification**

Chk1-S280 Phospho Peptide - Product InformationPrimary Accession
Sequence[O14757](#)
AKRPRVT(pS)GGVSESPC**Chk1-S280 Phospho Peptide - Additional Information****Gene ID** 1111**Other Names**

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

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.

Chk1-S280 Phospho 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, PubMed:12446774, PubMed:12399544, PubMed:14559997, PubMed:14988723, PubMed:15311285, PubMed: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, PubMed:32357935).

[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](http://www.uniprot.org/citations/15650047)). This regulation is achieved by a number of mechanisms that together help to preserve the integrity of the genome (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](http://www.uniprot.org/citations/15650047)). Recognizes the substrate consensus sequence [R-X-X- S/T] (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](http://www.uniprot.org/citations/15650047)). Binds to and phosphorylates CDC25A, CDC25B and CDC25C (PubMed: [9278511](http://www.uniprot.org/citations/9278511), PubMed: [12676583](http://www.uniprot.org/citations/12676583), PubMed: [14681206](http://www.uniprot.org/citations/14681206), PubMed: [12676925](http://www.uniprot.org/citations/12676925), PubMed: [12759351](http://www.uniprot.org/citations/12759351), PubMed: [19734889](http://www.uniprot.org/citations/19734889), PubMed: [14559997](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/9278511)). Phosphorylation of CDC25A at 'Ser- 76', 'Ser-124', 'Ser-178', 'Ser-279' and 'Ser-293' promotes proteolysis of CDC25A (PubMed: [9278511](http://www.uniprot.org/citations/9278511), PubMed: [12676583](http://www.uniprot.org/citations/12676583), PubMed: [14681206](http://www.uniprot.org/citations/14681206), PubMed: [12676925](http://www.uniprot.org/citations/12676925), PubMed: [12759351](http://www.uniprot.org/citations/12759351), PubMed: [19734889](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/9278511), PubMed: [19734889](http://www.uniprot.org/citations/19734889), PubMed: [20090422](http://www.uniprot.org/citations/20090422)). Inhibition of CDC25 leads to increased inhibitory tyrosine phosphorylation of CDK-cyclin complexes and blocks cell cycle progression (PubMed: [9278511](http://www.uniprot.org/citations/9278511)). Also phosphorylates NEK6 (PubMed: [18728393](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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

Chk1-S280 Phospho Peptide - Images