

KD-Validated Anti-Checkpoint Kinase 1 Rabbit Monoclonal Antibody
Rabbit monoclonal antibody
Catalog # AGI1310**Specification****KD-Validated Anti-Checkpoint Kinase 1 Rabbit Monoclonal Antibody - Product Information**

Application	WB, FC, ICC
Primary Accession	O14757
Reactivity	Human
Clonality	Monoclonal
Isotype	Rabbit IgG
Calculated MW	Predicted, 54 kDa; observed, 54 kDa kDa
Gene Name	CHEK1
Aliases	CHEK1; Checkpoint Kinase 1; CHK1; Serine/Threonine-Protein Kinase Chk1; Cell Cycle Checkpoint Kinase; CHK1 Checkpoint Homolog; EC 2.7.11.1; Checkpoint, S. Pombe, Homolog Of, 1; CHK1 (Checkpoint, S. Pombe) Homolog; CHK1 Checkpoint Homolog (S. Pombe); Checkpoint Kinase-1 4; EC 2.7.11; OZEMA21; Chk1-S
Immunogen	A synthesized peptide derived from human Chk1

KD-Validated Anti-Checkpoint Kinase 1 Rabbit Monoclonal Antibody - Additional Information

Gene ID	1111
Other Names	
Serine/threonine-protein kinase Chk1, 2.7.11.1, CHK1 checkpoint homolog, Cell cycle checkpoint kinase, Checkpoint kinase-1, CHEK1, CHK1	

KD-Validated Anti-Checkpoint Kinase 1 Rabbit Monoclonal 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, 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:9278511).

[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](http://www.uniprot.org/citations/10673501), PubMed: [15659650](http://www.uniprot.org/citations/15659650), PubMed: [16511572](http://www.uniprot.org/citations/16511572)). Also promotes repair of DNA cross-links through phosphorylation of FANCE (PubMed: [17296736](http://www.uniprot.org/citations/17296736)). Binds to and phosphorylates TLK1 at 'Ser-743', which prevents the TLK1-dependent phosphorylation of the chromatin assembly factor ASF1A (PubMed: [12660173](http://www.uniprot.org/citations/12660173), PubMed: [12955071](http://www.uniprot.org/citations/12955071)). This may enhance chromatin assembly both in the presence or absence of DNA damage (PubMed: [12660173](http://www.uniprot.org/citations/12660173), PubMed: [12955071](http://www.uniprot.org/citations/12955071)). May also play a role in replication fork maintenance through regulation of PCNA (PubMed: [18451105](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/17380128)). Phosphorylates SPRTN, promoting SPRTN recruitment to chromatin (PubMed: [31316063](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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

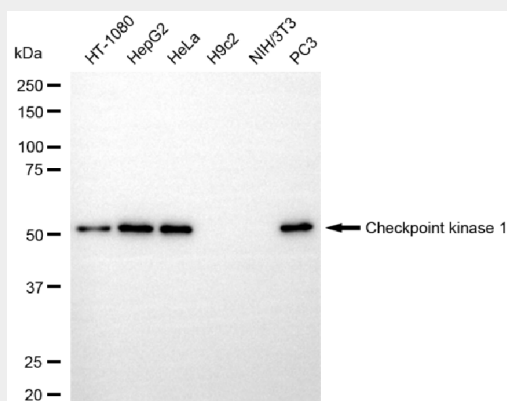
KD-Validated Anti-Checkpoint Kinase 1 Rabbit Monoclonal Antibody - Protocols

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

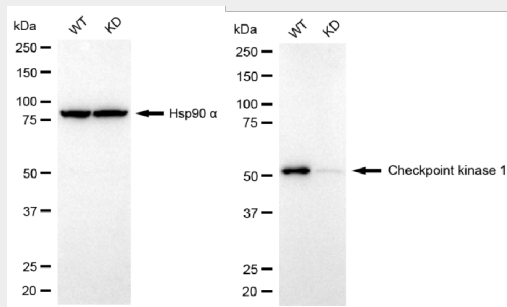
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)

- [Cell Culture](#)

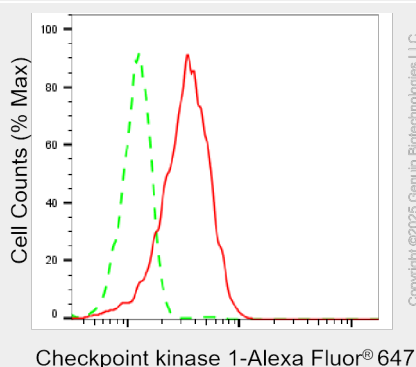
KD-Validated Anti-Checkpoint Kinase 1 Rabbit Monoclonal Antibody - Images



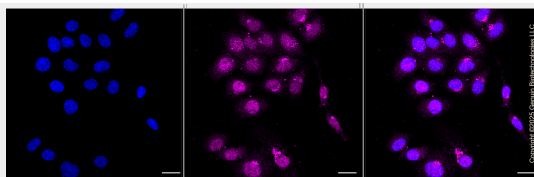
Western blotting analysis using anti-checkpoint kinase 1 antibody (Cat#AGI1310). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-checkpoint kinase 1 antibody (Cat#AGI1310, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Western blotting analysis using anti-checkpoint kinase 1 antibody (Cat#AGI1310). Checkpoint kinase 1 expression in wild-type (WT) and checkpoint kinase 1 (CHEK1) knockdown (KD) HeLa cells with 20 µg of total cell lysates. Hsp90 α serves as a loading control. The blot was incubated with anti-checkpoint kinase 1 antibody (Cat#AGI1310, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Flow cytometric analysis of Checkpoint kinase 1 expression in HepG2 cells using anti-Checkpoint kinase 1 antibody (Cat#AGI1310, 1:2,000). Green, isotype control; red, Checkpoint kinase 1.



Immunocytochemical staining of HepG2 cells with anti-Checkpoint kinase 1 antibody (Cat#AGI1310, 1:1,000). Nuclei were stained blue with DAPI; Checkpoint kinase 1 was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein abundance based on laser Intensity and smart gain: Medium. Scale bar, 20 μ m.