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KD-Validated Anti-Phospho-Chk1 (S280) Rabbit Monoclonal Antibody

Rabbit monoclonal antibody

Catalog # AGI1402

Specification

KD-Validated Anti-Phospho-Chk1 (S280) 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; CHK; 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; EC 2.7.11; OZEMA21; Chk1-S**
Immunogen	**A synthesized peptide derived from human Phospho-Chk1 (S280)**

KD-Validated Anti-Phospho-Chk1 (S280) 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-Phospho-Chk1 (S280) 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, PubMed:12399544, PubMed:12446774, PubMed:14559997, PubMed:14988723,

PubMed: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 CDCD25A (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:<a href="http://www.uniprot.org/citations/9278511"

target="_blank">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

KD-Validated Anti-Phospho-Chk1 (S280) 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

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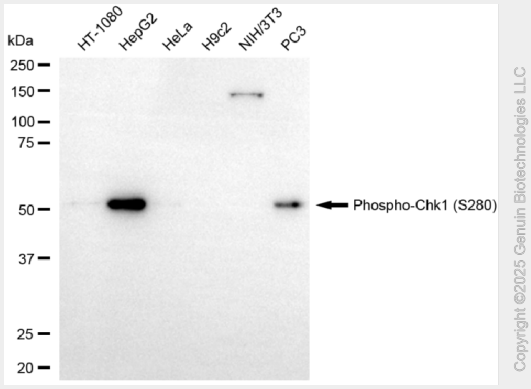
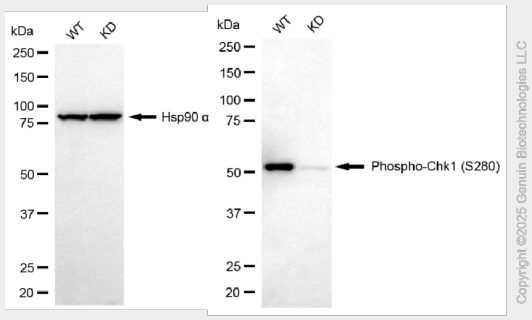
- Flow Cytomety
- Cell Culture

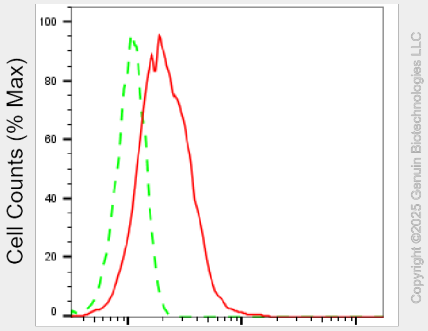
KD-Validated Anti-Phospho-Chk1 (S280) Rabbit Monoclonal Antibody - Images



Western blotting analysis using anti-phospho-Chk1 (S280) antibody (Cat#61704). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-phospho-Chk1 (S280) antibody (Cat#61704, 1:5,000) and HRP-conjugated goat anti rabbit secondary antibody (Cat#201, 1:20,000) respectively. Image was developed using FeQ™ ECL Substrate Kit (Cat#226).



Western blotting analysis using anti-phospho-Chk1 (S280) antibody (Cat#61704). Phospho-Chk1 (S280) expression in wild-type (WT) and 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-phospho-Chk1 (S280) antibody (Cat#61704, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody (Cat#201, 1:20,000) respectively. Image was developed using FeQ™ ECL Substrate Kit (Cat#226).



Phospho-Chk1 (S280)-Alexa Fluor® 647

Flow cytometric analysis of Phospho-Chk1 (S280) expression in HeLa cells using anti-Phospho-Chk1 (S280) antibody (Cat#61704, 1:2,000). Green, isotype control; red, Phospho-Chk1 (S280).

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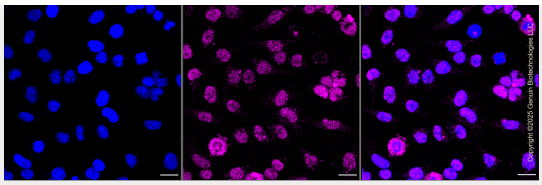

Immunocytochemical staining of HeLa cells with anti-Phospho-Chk1 (S280) antibody (Cat#61704, 1:1,000). Nuclei were stained blue with DAPI; Phospho-Chk1 (S280) was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein abundance based on laser Intensity and smart gain: Low. Scale bar, 20 µm.