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# Chk1 Rabbit mAb

Catalog # AP75258

## **Product Information**

**Application** WB 014757 **Primary Accession** 

Human, Mouse, Rat Reactivity

Host

Clonality Monoclonal Antibody

Calculated MW 54434

## **Additional Information**

Gene ID 1111

**Other Names** CHEK1

**Dilution** WB~~1/500-1/1000

**Format** 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and

0.05% BSA.

Storage Store at 4°C short term. Aliquot and store at -20°C long term. Avoid

freeze/thaw cycles.

### **Protein Information**

CHEK1 Name

**Synonyms** CHK1

Serine/threonine-protein kinase which is required for checkpoint-mediated **Function** 

> 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: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).

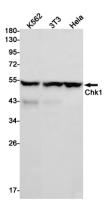
#### Cellular Location

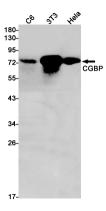
Nucleus. Chromosome. Cytoplasm Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Note=Nuclear export is mediated at least in part by XPO1/CRM1 (PubMed:12676962). Also localizes to the centrosome specifically during interphase, where it may protect centrosomal CDC2 kinase from inappropriate 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

#### **Images**





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