

Rabbit CDC2 Polyclonal Antibody | anti-CDC2 antibody

CDC2 Antibody

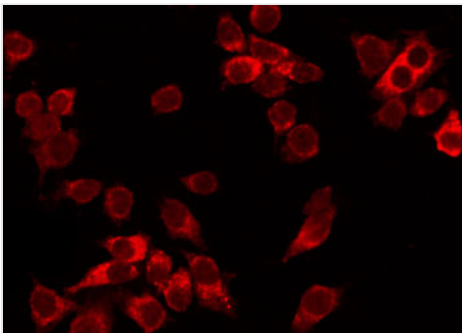
CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA322190	Rabbit	Human, Mouse, Rat	ELISA, Immunocytochemistry, Immunofluorescence, Western Blot

PRODUCT SYNONYMS

CDC2; Polyclonal Antibody; CDC2 Antibody; Cdc 2; Cdc2; CDC28A; CDK 1; CDK1; CDK1_HUMAN; CDKN1; CELL CYCLE CONTROLLER CDC2; Cell division control protein 2; Cell division control protein 2 homolog; Cell division cycle 2 G1 to S and G2 to M; Cell division protein kinase 1; Cell Division Cycle 2 Protein; Cyclin Dependent Kinase 1; Cyclin-dependent kinase 1; DKFZp686L20222; MGC111195; p34 Cdk1; p34 protein kinase; P34CDC2; anti-CDC2 antibody

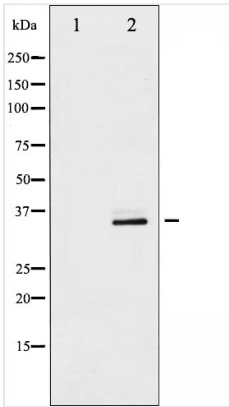
PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Isotype	IgG
Specificity	CDC2 antibody detects endogenous levels of total CDC2
Purity/Purification	The antiserum was purified by peptide affinity chromatography using SulfoLink Coupling Resin.
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Sequence Length	297
Applicable Applications for anti-CDC2 antibody	ELISA, ICC (Immunocytochemistry), IF (Immunofluorescence), WB (Western Blot)
Immunogen	A synthesized peptide derived from human CDC2
Subcellular Location	Nucleus.
Tissue Specificity	Isoform 2 is found in breast cancer tissues.
Predicted Cross Reactivity	Pig, Zebrafish, Bovine, Horse, Rabbit, Dog, Chicken, Xenopus
Similarity	Pig (100%), Zebrafish (100%), Bovine (100%), Horse (100%), Rabbit (100%), Dog (100%), Chicken (100%), Xenopus (100%)
Conjugation	Unconjugated
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.



IF (Immunofluorescence)

AAA322190 staining HepG2 by IF/ICC. The sample were fixed with PFA and permeabilized in 0.1% Triton X-100, then blocked in 10% serum for 45 minutes at 25 degree C. The primary antibody was diluted at 1/200 and incubated with the sample for 1 hour at 37 degree C. An Alexa Fluor 594 conjugated goat anti-rabbit IgG (H+L) Ab, diluted at 1/600, was used as the secondary antibody.



WB (Western Blot)

Western blot analysis of CDC2 expression in HepG2 whole cell lysates, The lane on the left is treated with the antigen-specific peptide.

Related Product Information for anti-CDC2 antibody	Description: The protein encoded by this gene is a member of the Ser/Thr protein kinase family. This protein is a catalytic subunit of the highly conserved protein kinase complex known as M-phase promoting factor (MPF), which is essential for G1/S and G2/M phase transitions of eukaryotic cell cycle. Mitotic cyclins stably associate with this protein and function as regulatory subunits. Function: Plays a key role in the control of the eukaryotic cell cycle by modulating the centrosome cycle as well as mitotic onset; promotes G2-M transition, and regulates G1 progress and G1-S transition via association with multiple interphase cyclins. Required in higher cells for entry into S-phase and mitosis. Phosphorylates PARVA/actopaxin, APC, AMPH, APC, BARD1, Bcl-xL/BCL2L1, BRCA2, CALD1, CASP8, CDC7, CDC20, CDC25A, CDC25C, CC2D1A, CENPA, CSNK2 proteins/CKII, FZR1/CDH1, CDK7, CEBPB, CHAMP1, DMD/dystrophin, EEF1 proteins/EF-1, EZH2, KIF11/EG5, EGFR, FANCG, FOS, GFAP, GOLGA2/GM130, GRASP1, UBE2A/hHR6A, HIST1H1 proteins/histone H1, HMGA1, HIVEP3/KRC, LMNA, LMNB, LMNC, LBR, LATS1, MAP1B, MAP4, MARCKS, MCM2, MCM4, MKLP1, MYB, NEFH, NFIC, NPC/nuclear pore complex, PITPNM1/NIR2, NPM1, NCL, NUCKS1, NPM1/numatrin, ORC1, PRKAR2A, EEF1E1/p18, EIF3F/p47, p53/TP53, NONO/p54NRB, PAPOLA, PLEC/plectin, RB1, UL40/R2, RAB4A, RAP1GAP, RCC1, RPS6KB1/S6K1, KHDRBS1/SAM68, ESPL1, SKI, BIRC5/survivin, STIP1, TEX14, beta-tubulins, MAPT/TAU, NEDD1, VIM/vimentin, TK1, FOXO1, RUNX1/AML1, SIRT2 and RUNX2. CDK1/CDC2-cyclin-B controls pronuclear union in interphase fertilized eggs. Essential for early stages of embryonic development. During G2 and early mitosis, CDC25A/B/C-mediated dephosphorylation activates CDK1/cyclin complexes which phosphorylate several substrates that trigger at least centrosome separation, Golgi dynamics, nuclear envelope breakdown and chromosome condensation. Once chromosomes are condensed and aligned at the metaphase plate, CDK1 activity is switched off by WEE1-and PKMYT1-mediated phosphorylation to allow sister chromatid separation, chromosome decondensation, reformation of the nuclear envelope and cytokinesis. Inactivated by PKR/EIF2AK2-and WEE1-mediated phosphorylation upon DNA damage to stop cell cycle and genome replication at the G2 checkpoint thus facilitating DNA repair. Reactivated after successful DNA repair through WIP1-dependent signaling leading to CDC25A/B/C-mediated dephosphorylation and restoring cell cycle progression. In proliferating cells, CDK1-mediated FOXO1 phosphorylation at the G2-M phase represses FOXO1 interaction with 14-3-3 proteins and thereby promotes FOXO1 nuclear accumulation and transcription factor activity, leading to cell death of postmitotic neurons. The phosphorylation of beta-tubulins regulates microtubule dynamics during mitosis. NEDD1 phosphorylation promotes PLK1-mediated NEDD1 phosphorylation and subsequent targeting of the gamma-tubulin ring complex (gTuRC) to the centrosome, an important step for spindle formation. In addition, CC2D1A phosphorylation regulates CC2D1A spindle pole localization and association with SCC1/RAD21 and centriole cohesion during mitosis. The phosphorylation of Bcl-xL/BCL2L1 after prolonged G2 arrest upon DNA damage triggers apoptosis. In contrast, CASP8 phosphorylation during mitosis prevents its activation by proteolysis and subsequent apoptosis. This phosphorylation occurs in cancer cell lines, as well as in primary breast tissues and lymphocytes. EZH2 phosphorylation promotes H3K27me3 maintenance and epigenetic gene silencing. CALD1 phosphorylation promotes Schwann cell migration during peripheral nerve regeneration. CDK1-cyclin-B complex phosphorylates NCKAP5L and mediates its dissociation from centrosomes during mitosis (PubMed:26549230). Subunit Structure: Forms a stable but non-covalent complex with a regulatory subunit and with a cyclin. Interacts with cyclins-B (CCNB1, CCNB2 and CCNB3) to form a serine/threonine kinase holoenzyme complex also known as maturation promoting factor (MPF). The cyclin subunit imparts substrate specificity to the complex. Can also form CDK1-cylin-D and CDK1-cyclin-E complexes that phosphorylate RB1 in vitro. Binds to RB1 and other transcription factors such as FOXO1 and RUNX2. Promotes G2-M transition when in complex with a cyclin-B. Interacts with DLGAP5. Binds to the CDK inhibitors CDKN1A/p21 and CDKN1B/p27. Isoform 2 is unable to complex with cyclin-B1 and also fails to bind to CDKN1A/p21. Interacts with catalytically active CCNB1 and RALBP1 during mitosis to form an endocytotic complex during interphase. Associates with cyclins-A and B1 during S-phase in regenerating hepatocytes. Interacts with FANCC. Interacts with CEP63; this interaction recruits CDK1 to centrosomes. Interacts with CENPA (PubMed:25556658). Post-translational Modifications: Phosphorylation at Thr-161 by CAK/CDK7 activates kinase activity. Phosphorylation at Thr-14 and Tyr-15 by PKMYT1 prevents nuclear translocation. Phosphorylation at Tyr-15 by WEE1 and WEE2 inhibits the protein kinase activity and acts as a negative regulator of entry into mitosis (G2 to M transition). Phosphorylation by PKMYT1 and WEE1 takes place during mitosis to keep CDK1-cyclin-B complexes inactive until the end of G2. By the end of G2, PKMYT1 and WEE1 are inactivated, but CDC25A and CDC25B are activated. Dephosphorylation by active CDC25A and CDC25B at Thr-14 and Tyr-15, leads to CDK1 activation at the G2-M transition. Phosphorylation at Tyr-15 by WEE2 during oogenesis is required to maintain meiotic arrest in oocytes during the germinal vesicle (GV) stage, a long period of quiescence at dictyate prophase I, leading to prevent meiotic reentry. Phosphorylation by WEE2 is also required for metaphase II exit during egg activation to ensure exit from meiosis in oocytes and promote pronuclear formation. Phosphorylated at Tyr-4 by PKR/EIF2AK2 upon genotoxic stress. This phosphorylation triggers CDK1 polyubiquitination and subsequent proteolysis, thus leading to G2 arrest. In response to UV irradiation, phosphorylation at Tyr-15 by PRKCD activates the G2/M DNA damage checkpoint. Polyubiquitinated upon genotoxic stress. Similarity: Belongs to the protein kinase superfamily. CMGC Ser/Thr protein kinase family. CDC2/CDKX subfamily.
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NCBI AND UNIPROT INFORMATION

NCBI GI #	1004170672
NCBI GeneID	983
NCBI Accession #	NP_001307847.1
NCBI GenBank Nucleotide #	NM_001320918.1
UniProt Accession #	P06493; O60764; A8K7C4; C9J497
Molecular Weight	Observed: 34 kDa Predicted: 35 kDa
NCBI Official Full Name	cyclin-dependent kinase 1 isoform 1
NCBI Official Synonym Full Names	cyclin dependent kinase 1
NCBI Official Symbol	CDK1
NCBI Official Synonym Symbols	CDC2; CDC28A; P34CDC2
NCBI Protein Information	cyclin-dependent kinase 1
UniProt Protein Name	Cyclin-dependent kinase 1
UniProt Gene Name	CDK1
UniProt Synonym Gene Names	CDC2; CDC28A; CDKN1; P34CDC2; CDK1

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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