

CDK2 Antibody

Rabbit mAb

Catalog # AP90087

Product Information

Application	WB, IHC, IF, ICC, IP, IHF
Primary Accession	P24941
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Other Names	Cyclin-dependent kinase 1; CDC28, CDC2A; CDK1; MPF; kinase Cdc2; p34 protein kinase;
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	33930

Additional Information

Dilution	WB 1:500~1:1000 IHC 1:50~1:100 ICC/IF 1:50~1:200 IP 1:30
Purification	Affinity-chromatography
Immunogen	A synthesized peptide derived from human Cdk2
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.
Storage Condition and Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.

Protein Information

Name	CDK2
Synonyms	CDKN2
Function	Serine/threonine-protein kinase involved in the control of the cell cycle; essential for meiosis, but dispensable for mitosis (PubMed: 10499802 , PubMed: 10884347 , PubMed: 10995386 , PubMed: 10995387 , PubMed: 11051553 , PubMed: 11113184 , PubMed: 12944431 , PubMed: 15800615 , PubMed: 17495531 , PubMed: 19966300 , PubMed: 20935635 , PubMed: 21262353 , PubMed: 21596315 , PubMed: 28216226 , PubMed: 28666995). Phosphorylates CABLES1, CTNNB1, CDK2AP2, ERCC6, NBN, USP37, p53/TP53, NPM1, CDK7, RB1, BRCA2, MYC, NPAT, EZH2 (PubMed: 10499802 , PubMed: 10995386 , PubMed: 10995387 , PubMed: 11051553 , PubMed: 11113184 , PubMed: 12944431 , PubMed: 15800615 , PubMed: 19966300 , PubMed: 20935635 , PubMed: 21262353 , PubMed: 21596315 , PubMed: 28216226). Triggers

duplication of centrosomes and DNA (PubMed:[11051553](#)). Acts at the G1-S transition to promote the E2F transcriptional program and the initiation of DNA synthesis, and modulates G2 progression; controls the timing of entry into mitosis/meiosis by controlling the subsequent activation of cyclin B/CDK1 by phosphorylation, and coordinates the activation of cyclin B/CDK1 at the centrosome and in the nucleus (PubMed:[18372919](#), PubMed:[19238148](#), PubMed:[19561645](#)). Crucial role in orchestrating a fine balance between cellular proliferation, cell death, and DNA repair in embryonic stem cells (ESCs) (PubMed:[18372919](#), PubMed:[19238148](#), PubMed:[19561645](#)). Activity of CDK2 is maximal during S phase and G2; activated by interaction with cyclin E during the early stages of DNA synthesis to permit G1-S transition, and subsequently activated by cyclin A2 (cyclin A1 in germ cells) during the late stages of DNA replication to drive the transition from S phase to mitosis, the G2 phase (PubMed:[18372919](#), PubMed:[19238148](#), PubMed:[19561645](#)). EZH2 phosphorylation promotes H3K27me3 maintenance and epigenetic gene silencing (PubMed:[20935635](#)). Cyclin E/CDK2 prevents oxidative stress-mediated Ras-induced senescence by phosphorylating MYC (PubMed:[19966300](#)). Involved in G1-S phase DNA damage checkpoint that prevents cells with damaged DNA from initiating mitosis; regulates homologous recombination-dependent repair by phosphorylating BRCA2, this phosphorylation is low in S phase when recombination is active, but increases as cells progress towards mitosis (PubMed:[15800615](#), PubMed:[20195506](#), PubMed:[21319273](#)). In response to DNA damage, double-strand break repair by homologous recombination a reduction of CDK2-mediated BRCA2 phosphorylation (PubMed:[15800615](#)). Involved in regulation of telomere repair by mediating phosphorylation of NBN (PubMed:[28216226](#)). Phosphorylation of RB1 disturbs its interaction with E2F1 (PubMed:[10499802](#)). NPM1 phosphorylation by cyclin E/CDK2 promotes its dissociates from unduplicated centrosomes, thus initiating centrosome duplication (PubMed:[11051553](#)). Cyclin E/CDK2-mediated phosphorylation of NPAT at G1-S transition and until prophase stimulates the NPAT-mediated activation of histone gene transcription during S phase (PubMed:[10995386](#), PubMed:[10995387](#)). Required for vitamin D-mediated growth inhibition by being itself inactivated (PubMed:[20147522](#)). Involved in the nitric oxide- (NO) mediated signaling in a nitrosylation/activation-dependent manner (PubMed:[20079829](#)). USP37 is activated by phosphorylation and thus triggers G1-S transition (PubMed:[21596315](#)). CTNNB1 phosphorylation regulates insulin internalization (PubMed:[21262353](#)). Phosphorylates FOXP3 and negatively regulates its transcriptional activity and protein stability (By similarity). Phosphorylates ERCC6 which is essential for its chromatin remodeling activity at DNA double-strand breaks (PubMed:[29203878](#)). Acts as a regulator of the phosphatidylinositol 3-kinase/protein kinase B signal transduction by mediating phosphorylation of the C-terminus of protein kinase B (PKB/AKT1 and PKB/AKT2), promoting its activation (PubMed:[24670654](#)).

Cellular Location

Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Nucleus, Cajal body. Cytoplasm. Endosome Note=Localized at the centrosomes in late G2 phase after separation of the centrosomes but before the start of prophase. Nuclear-cytoplasmic trafficking is mediated during the inhibition by 1,25-(OH)₂D(3)

Images

Western blot analysis of Cdk2 expression in HeLa cell lysate.

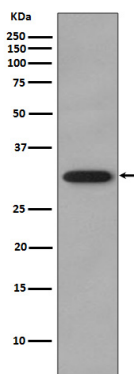


Image not found : 202311/AP90087-IHC.jpg

Immunohistochemical analysis of paraffin-embedded human breast carcinoma, using CDK2 Antibody.

Image not found : 202311/AP90087-IF.jpg

Immunofluorescent analysis of HeLa cells, using CDK2 Antibody .

Image not found : 202311/AP90087-wb5.jpg

lncRNA1, a long non-coding RNA that is transcriptionally induced by oestrogen, promotes epithelial ovarian cancer cell proliferation. -International Journal of Oncology

Image not found : 202311/AP90087-wb6.jpg

APC/C is essential for hematopoiesis and impaired in aplastic anemia. -Oncotarget

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