

Phospho-Cdk2(T160) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP3067a

Product Information

Application	WB, E
Primary Accession	P24941
Other Accession	Q63699 , P97377 , O55076 , Q5E9Y0
Reactivity	Human
Predicted	Bovine, Hamster, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB7342
Calculated MW	33930

Additional Information

Gene ID	1017
Other Names	Cyclin-dependent kinase 2, Cell division protein kinase 2, p33 protein kinase, CDK2, CDKN2
Target/Specificity	This Cdk2 Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding T160 of human Cdk2.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.05% (V/V) Proclin 300. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	Phospho-Cdk2(T160) Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

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, SUV39H1, EZH2 (PubMed:[10499802](#), PubMed:[10995386](#), PubMed:[10995387](#), PubMed:[11051553](#), PubMed:[11113184](#), PubMed:[12944431](#), PubMed:[15800615](#), PubMed:[19966300](#), PubMed:[20935635](#), PubMed:[21262353](#), PubMed:[21596315](#), PubMed:[24728993](#), 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)₂D₃

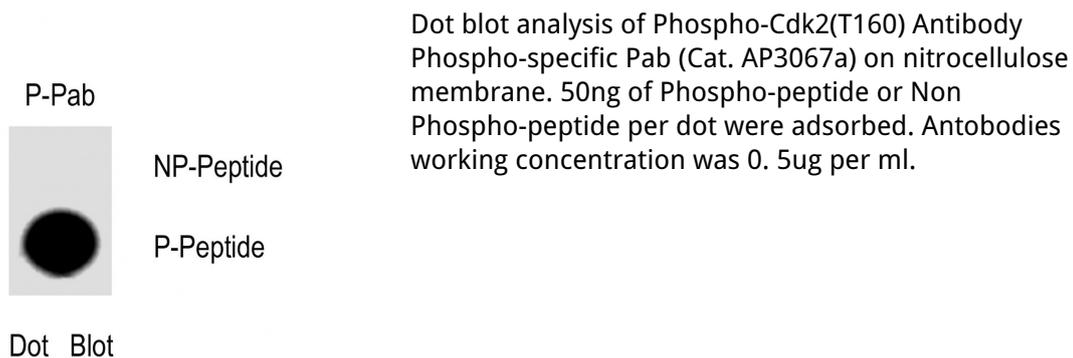
Background

Cdk2 is a member of the cyclin-dependent protein kinase (CDK) family. CDK family members are highly similar to the gene products of *Saccharomyces cerevisiae* cdc28, and *Schizosaccharomyces pombe* cdc2, and are known to be important regulators of cell cycle progression. This protein forms a trimeric complex with cyclin H and MAT1, which functions as a Cdk-activating kinase (CAK). It is an essential component of the transcription factor TFIIF, that is involved in transcription initiation and DNA repair. This protein is thought to serve as a direct link between the regulation of transcription and the cell cycle.

References

- Bicaku, E., et al., *Tissue Cell* 37(1):53-58 (2005).
Lolli, G., et al., *Structure (Camb.)* 12(11):2067-2079 (2004).
Ito, S., et al., *Genes Cells* 9(10):983-992 (2004).
Zhou, M., et al., *Proc. Natl. Acad. Sci. U.S.A.* 100(22):12666-12671 (2003).
Kino, T., et al., *Biochem. Biophys. Res. Commun.* 298(1):17-23 (2002).

Images



Citations

- [Phosphorylation of CDK2 on threonine 160 influences silencing of sex chromosome during male meiosis.](#)

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