

Cdk2/Cdc2 Polyclonal Antibody
Catalog # AP69017**Specification****Cdk2/Cdc2 Polyclonal Antibody - Product Information**

Application	WB, IHC-P
Primary Accession	P24941
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal

Cdk2/Cdc2 Polyclonal Antibody - Additional Information**Gene ID** 1017**Other Names**

CDK2; CDKN2; Cyclin-dependent kinase 2; Cell division protein kinase 2; p33 protein kinase

Dilution

WB~~Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. ELISA: 1/40000. Not yet tested in other applications.

IHC-P~~N/A

Format

Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.

Storage Conditions

-20°C

Cdk2/Cdc2 Polyclonal Antibody - 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)

[target="_blank">20935635](#), PubMed: [, PubMed: \[, PubMed: \\[, PubMed: \\\[\\\\). Phosphorylates CABLES1, CTNNB1, CDK2AP2, ERCC6, NBN, USP37, p53/TP53, NPM1, CDK7, RB1, BRCA2, MYC, NPAT, EZH2 \\\\(PubMed: \\\\[, PubMed: \\\\\[, PubMed: \\\\\\[, PubMed: \\\\\\\[, PubMed: \\\\\\\\[, PubMed: \\\\\\\\\[, PubMed: \\\\\\\\\\[, PubMed: \\\\\\\\\\\[, PubMed: \\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\). Triggers duplication of centrosomes and DNA \\\\\\\\\\\\\\\\(PubMed: \\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\). 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: \\\\\\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\\\\). Crucial role in orchestrating a fine balance between cellular proliferation, cell death, and DNA repair in embryonic stem cells \\\\\\\\\\\\\\\\\\\\(ESCs\\\\\\\\\\\\\\\\\\\\) \\\\\\\\\\\\\\\\\\\\(PubMed: \\\\\\\\\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\\\\\\\). 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: \\\\\\\\\\\\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\\\\\\\\\\). EZH2 phosphorylation promotes H3K27me3 maintenance and epigenetic gene silencing \\\\\\\\\\\\\\\\\\\\\\\\\\(PubMed: \\\\\\\\\\\\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\\\\\\\\\\\). Cyclin E/CDK2 prevents oxidative stress- mediated Ras-induced senescence by phosphorylating MYC \\\\\\\\\\\\\\\\\\\\\\\\\\\(PubMed: \\\\\\\\\\\\\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\\\\\\\\\\\\). 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: \\\\\\\\\\\\\\\\\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\[, PubMed: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\). In response to DNA damage, double- strand break repair by homologous recombination a reduction of CDK2- mediated BRCA2 phosphorylation \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\(PubMed: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\). Involved in regulation of telomere repair by mediating phosphorylation of NBN \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\(PubMed: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\). Phosphorylation of RB1 disturbs its interaction with E2F1 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\(PubMed: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\[\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\). NPM1 phosphorylation by cyclin E/CDK2 promotes its dissociates from unduplicated centrosomes, thus initiating centrosome duplication \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\(PubMed:\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/10499802\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/28216226\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/15800615\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/21319273\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/20195506\\\\\\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/15800615\\\\\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/19966300\\\\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/20935635\\\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/19561645\\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/19238148\\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/18372919\\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/19561645\\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/19238148\\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/18372919\\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/19561645\\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/19238148\\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/18372919\\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/11051553\\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\\]\\\\\\\\\\\\\\\(http://www.uniprot.org/citations/28216226\\\\\\\\\\\\\\\)\\\\\\\\\\\\\\]\\\\\\\\\\\\\\(http://www.uniprot.org/citations/21596315\\\\\\\\\\\\\\)\\\\\\\\\\\\\]\\\\\\\\\\\\\(http://www.uniprot.org/citations/21262353\\\\\\\\\\\\\)\\\\\\\\\\\\]\\\\\\\\\\\\(http://www.uniprot.org/citations/20935635\\\\\\\\\\\\)\\\\\\\\\\\]\\\\\\\\\\\(http://www.uniprot.org/citations/19966300\\\\\\\\\\\)\\\\\\\\\\]\\\\\\\\\\(http://www.uniprot.org/citations/15800615\\\\\\\\\\)\\\\\\\\\]\\\\\\\\\(http://www.uniprot.org/citations/12944431\\\\\\\\\)\\\\\\\\]\\\\\\\\(http://www.uniprot.org/citations/11113184\\\\\\\\)\\\\\\\]\\\\\\\(http://www.uniprot.org/citations/11051553\\\\\\\)\\\\\\]\\\\\\(http://www.uniprot.org/citations/10995387\\\\\\)\\\\\]\\\\\(http://www.uniprot.org/citations/10995386\\\\\)\\\\]\\\\(http://www.uniprot.org/citations/10499802\\\\)\\\]\\\(http://www.uniprot.org/citations/28666995\\\)\\]\\(http://www.uniprot.org/citations/28216226\\)\]\(http://www.uniprot.org/citations/21596315\)](http://www.uniprot.org/citations/21262353)

target="_blank">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

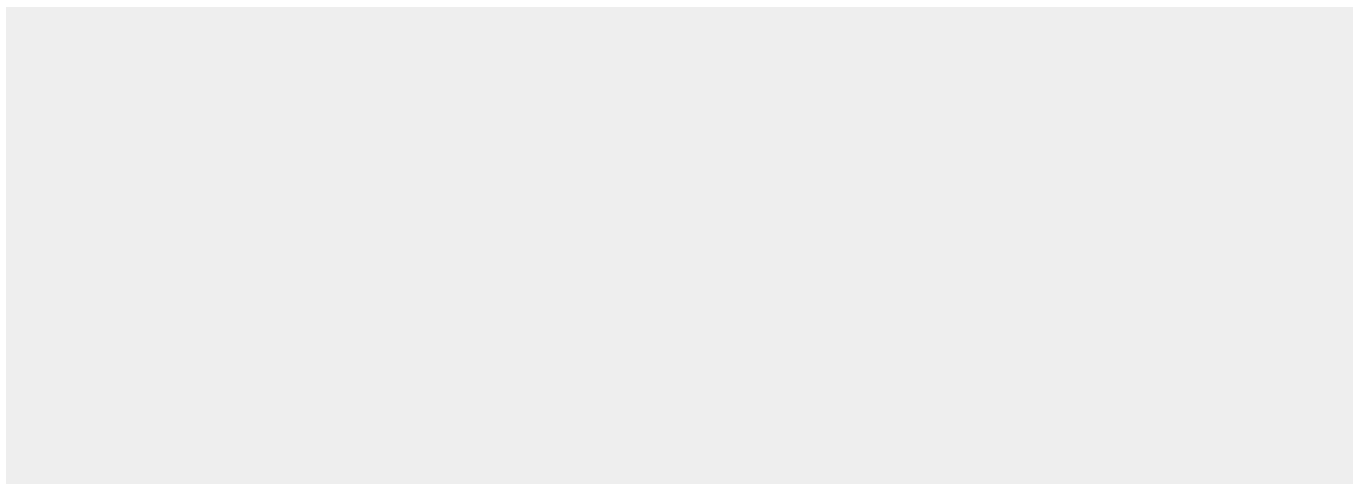
Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Nucleus, Cajal body. Cytoplasm. Endosome Note=Localized at the centrosomes in late G2 phase after separation of the centrosomes but before the start of prophase. Nuclear-cytoplasmic trafficking is mediated during the inhibition by 1,25-(OH)(2)D(3)

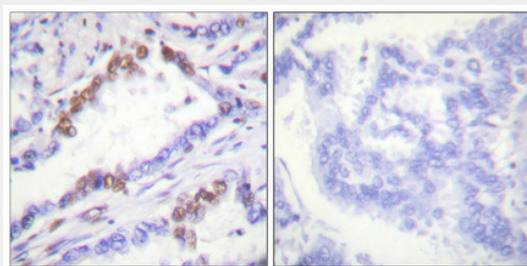
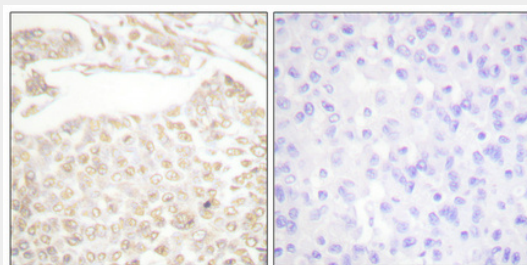
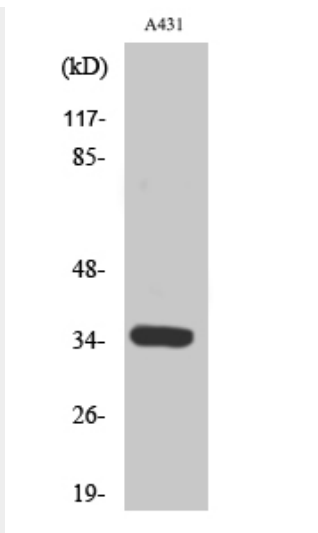
Cdk2/Cdc2 Polyclonal Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

Cdk2/Cdc2 Polyclonal Antibody - Images





Cdk2/Cdc2 Polyclonal Antibody - Background

Serine/threonine-protein kinase involved in the control of the cell cycle; essential for meiosis, but dispensable for mitosis. Phosphorylates CTNNB1, USP37, p53/TP53, NPM1, CDK7, RB1, BRCA2, MYC, NPAT, EZH2. Triggers duplication of centrosomes and DNA. 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. Crucial role in orchestrating a fine balance between cellular proliferation, cell death, and DNA repair in human embryonic stem cells (hESCs). 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. EZH2 phosphorylation promotes H3K27me3 maintenance and epigenetic gene silencing. Phosphorylates CABLES1 (By similarity). Cyclin E/CDK2 prevents oxidative stress-mediated Ras-induced senescence by phosphorylating MYC. 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. In response to DNA damage, double-strand break repair by homologous recombination a reduction of CDK2- mediated BRCA2 phosphorylation. Phosphorylation of RB1 disturbs its interaction with E2F1. NPM1 phosphorylation by cyclin E/CDK2 promotes its dissociates from unduplicated centrosomes, thus initiating centrosome duplication. 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. Required for vitamin D-mediated growth inhibition by being itself inactivated. Involved in the nitric oxide- (NO) mediated signaling in a nitrosylation/activation-dependent manner. USP37 is activated by phosphorylation and thus triggers G1-S transition. CTNNB1 phosphorylation regulates insulin internalization. Phosphorylates FOXP3 and negatively regulates its transcriptional activity and protein stability (By similarity). Phosphorylates CDK2AP2 (PubMed:12944431).