

**CDK2 Antibody**  
Rabbit mAb  
Catalog # AP90087

## Specification

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### CDK2 Antibody - Product Information

Application	WB, IHC, ICC, IP
Primary Accession	<a href="#">P24941</a>
Reactivity	Rat
Clonality	Monoclonal
<b>Other Names</b>	
Cyclin-dependent kinase 1; CDC28, CDC2A; CDK1; MPF; kinase Cdc2; p34 protein kinase;	
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	33930 Da

### CDK2 Antibody - Additional Information

Purification	<b>Affinity-chromatography</b>
Immunogen	<b>A synthesized peptide derived from human Cdk2</b>
Description	<b>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.</b>
Storage Condition and Buffer	<b>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.</b>

### CDK2 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](http://www.uniprot.org/citations/10499802) target="\_blank">10499802</a>, PubMed: [10884347](http://www.uniprot.org/citations/10884347) target="\_blank">10884347</a>, PubMed: [10995386](http://www.uniprot.org/citations/10995386) target="\_blank">10995386</a>, PubMed: [10995387](http://www.uniprot.org/citations/10995387) target="\_blank">10995387</a>, PubMed: [11051553](http://www.uniprot.org/citations/11051553) target="\_blank">11051553</a>)

target="\_blank">11051553</a>, PubMed:<a href="http://www.uniprot.org/citations/11113184" target="\_blank">11113184</a>, PubMed:<a href="http://www.uniprot.org/citations/12944431" target="\_blank">12944431</a>, PubMed:<a href="http://www.uniprot.org/citations/15800615" target="\_blank">15800615</a>, PubMed:<a href="http://www.uniprot.org/citations/17495531" target="\_blank">17495531</a>, PubMed:<a href="http://www.uniprot.org/citations/19966300" target="\_blank">19966300</a>, PubMed:<a href="http://www.uniprot.org/citations/20935635" target="\_blank">20935635</a>, PubMed:<a href="http://www.uniprot.org/citations/21262353" target="\_blank">21262353</a>, PubMed:<a href="http://www.uniprot.org/citations/21596315" target="\_blank">21596315</a>, PubMed:<a href="http://www.uniprot.org/citations/28216226" target="\_blank">28216226</a>, PubMed:<a href="http://www.uniprot.org/citations/28666995" target="\_blank">28666995</a>). Phosphorylates CABLES1, CTNNB1, CDK2AP2, ERCC6, NBN, USP37, p53/TP53, NPM1, CDK7, RB1, BRCA2, MYC, NPAT, EZH2 (PubMed:<a href="http://www.uniprot.org/citations/10499802" target="\_blank">10499802</a>, PubMed:<a href="http://www.uniprot.org/citations/10995386" target="\_blank">10995386</a>, PubMed:<a href="http://www.uniprot.org/citations/10995387" target="\_blank">10995387</a>, PubMed:<a href="http://www.uniprot.org/citations/11051553" target="\_blank">11051553</a>, PubMed:<a href="http://www.uniprot.org/citations/11113184" target="\_blank">11113184</a>, PubMed:<a href="http://www.uniprot.org/citations/12944431" target="\_blank">12944431</a>, PubMed:<a href="http://www.uniprot.org/citations/15800615" target="\_blank">15800615</a>, PubMed:<a href="http://www.uniprot.org/citations/19966300" target="\_blank">19966300</a>, PubMed:<a href="http://www.uniprot.org/citations/20935635" target="\_blank">20935635</a>, PubMed:<a href="http://www.uniprot.org/citations/21262353" target="\_blank">21262353</a>, PubMed:<a href="http://www.uniprot.org/citations/21596315" target="\_blank">21596315</a>, PubMed:<a href="http://www.uniprot.org/citations/28216226" target="\_blank">28216226</a>). Triggers duplication of centrosomes and DNA (PubMed:<a href="http://www.uniprot.org/citations/11051553" target="\_blank">11051553</a>). 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:<a href="http://www.uniprot.org/citations/18372919" target="\_blank">18372919</a>, PubMed:<a href="http://www.uniprot.org/citations/19238148" target="\_blank">19238148</a>, PubMed:<a href="http://www.uniprot.org/citations/19561645" target="\_blank">19561645</a>). Crucial role in orchestrating a fine balance between cellular proliferation, cell death, and DNA repair in embryonic stem cells (ESCs) (PubMed:<a href="http://www.uniprot.org/citations/18372919" target="\_blank">18372919</a>, PubMed:<a href="http://www.uniprot.org/citations/19238148" target="\_blank">19238148</a>, PubMed:<a href="http://www.uniprot.org/citations/19561645" target="\_blank">19561645</a>). 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:<a href="http://www.uniprot.org/citations/18372919" target="\_blank">18372919</a>, PubMed:<a href="http://www.uniprot.org/citations/19238148" target="\_blank">19238148</a>, PubMed:<a href="http://www.uniprot.org/citations/19561645" target="\_blank">19561645</a>). EZH2 phosphorylation promotes H3K27me3 maintenance and epigenetic gene silencing (PubMed:<a href="http://www.uniprot.org/citations/20935635" target="\_blank">20935635</a>). Cyclin E/CDK2 prevents oxidative stress- mediated Ras-induced senescence by phosphorylating MYC (PubMed:<a href="http://www.uniprot.org/citations/19966300" target="\_blank">19966300</a>). 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:<a href="http://www.uniprot.org/citations/15800615" target="\_blank">15800615</a>, PubMed:<a href="http://www.uniprot.org/citations/20195506" target="\_blank">20195506</a>, PubMed:<a href="http://www.uniprot.org/citations/21319273" target="\_blank">21319273</a>). In response to DNA damage, double- strand break repair by homologous recombination a reduction of CDK2- mediated BRCA2 phosphorylation (PubMed:<a href="http://www.uniprot.org/citations/15800615" target="\_blank">15800615</a>). Involved in

regulation of telomere repair by mediating phosphorylation of NBN (PubMed:<a href="http://www.uniprot.org/citations/28216226" target="\_blank">28216226</a>). Phosphorylation of RB1 disturbs its interaction with E2F1 (PubMed:<a href="http://www.uniprot.org/citations/10499802" target="\_blank">10499802</a>). NPM1 phosphorylation by cyclin E/CDK2 promotes its dissociates from unduplicated centrosomes, thus initiating centrosome duplication (PubMed:<a href="http://www.uniprot.org/citations/11051553" target="\_blank">11051553</a>). 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:<a href="http://www.uniprot.org/citations/10995386" target="\_blank">10995386</a>, PubMed:<a href="http://www.uniprot.org/citations/10995387" target="\_blank">10995387</a>). Required for vitamin D-mediated growth inhibition by being itself inactivated (PubMed:<a href="http://www.uniprot.org/citations/20147522" target="\_blank">20147522</a>). Involved in the nitric oxide- (NO) mediated signaling in a nitrosylation/activation-dependent manner (PubMed:<a href="http://www.uniprot.org/citations/20079829" target="\_blank">20079829</a>). USP37 is activated by phosphorylation and thus triggers G1-S transition (PubMed:<a href="http://www.uniprot.org/citations/21596315" target="\_blank">21596315</a>). CTNNB1 phosphorylation regulates insulin internalization (PubMed:<a href="http://www.uniprot.org/citations/21262353" target="\_blank">21262353</a>). 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:<a href="http://www.uniprot.org/citations/29203878" target="\_blank">29203878</a>). 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:<a href="http://www.uniprot.org/citations/24670654" target="\_blank">24670654</a>).

#### Cellular Location

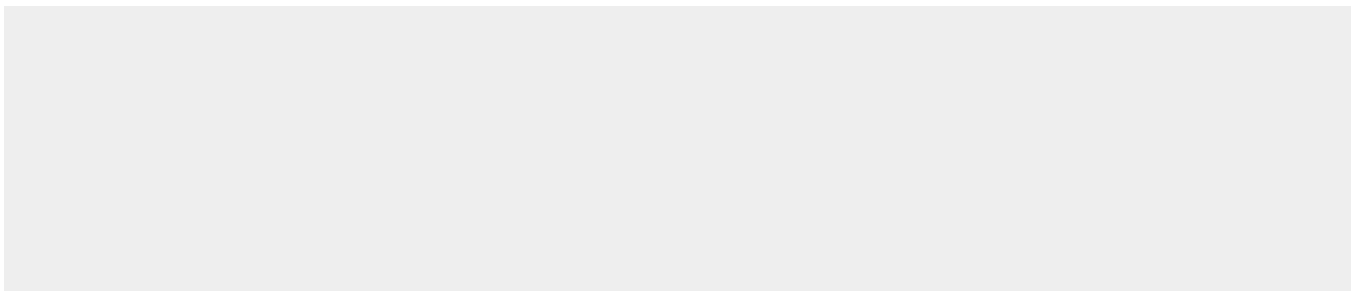
Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Nucleus, Cajal body. Cytoplasm. Endosome Note=Localized at the centrosomes in late G2 phase after separation of the centrosomes but before the start of prophase. Nuclear-cytoplasmic trafficking is mediated during the inhibition by 1,25-(OH)(2)D(3)

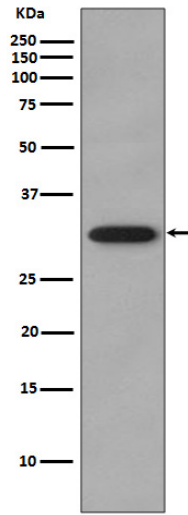
#### CDK2 Antibody - Protocols

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 Antibody - Images





Western blot analysis of Cdk2 expression in HeLa cell lysate.