

**Anti-cdk2 (RABBIT) Antibody**  
**cdk2 Antibody**  
**Catalog # ASR3667****Specification**

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**Anti-cdk2 (RABBIT) Antibody - Product Information**

Host	Rabbit
Conjugate	Unconjugated
Target Species	Human
Reactivity	Rat, Human, Mouse
Clonality	Polyclonal
Application	WB, IHC, E, IP, I, LCI
Application Note	Anti-cdk2 antibody has been tested in western blot and immunohistochemistry and is suitable for IF and other antibody based assays. Multiple isoforms as well as phosphorylated forms of cdk-2 may be detected by this antibody. Use paraffin embedded tissues for immunohistochemistry. Optimal titers for other applications should be determined by the researcher.
Physical State	Liquid (sterile filtered)
Immunogen	Anti-cdk2 antibody was prepared from whole rabbit serum by repeated immunizations with a synthetic peptide corresponding to the C-terminus of the human cdk-2 protein conjugated to Keyhole Limpet Hemocyanin (KLH).
Preservative	0.01% (w/v) Sodium Azide

**Anti-cdk2 (RABBIT) Antibody - Additional Information****Gene ID** 1017**Other Names**  
1017**Purity**

Anti-cdk2 antibody was prepared from monospecific antiserum by delipidation and defibrination. Antiserum will specifically react with a 33 kDa cdk2 protein from human, rat and mouse tissue. No reaction was observed against other related cyclin dependent kinases. Cross reactivity with cdk2 from other species may also occur.

**Storage Condition**

Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.

**Precautions Note**

This product is for research use only and is not intended for therapeutic or diagnostic applications.

**Anti-cdk2 (RABBIT) 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:<a href="http://www.uniprot.org/citations/10499802" target="\_blank">10499802</a>, PubMed:<a href="http://www.uniprot.org/citations/10884347" target="\_blank">10884347</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/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)

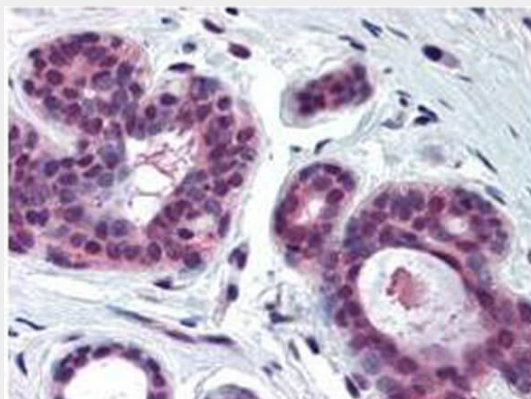
### Anti-cdk2 (RABBIT) Antibody - Protocols

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](#)

#### **Anti-cdk2 (RABBIT) Antibody - Images**



Immunohistochemistry of Anti-CDK2 antibody. Tissue: human skin formalin fixed and paraffin embedded. No pre-treatment of sample was required. Primary Antibody: Anti-CDK2 was diluted 1:500. The image shows the localization of antibody as the precipitated red signal, with a hematoxylin purple nuclear counter stain.

#### **Anti-cdk2 (RABBIT) Antibody - Background**

Anti cdk2 antibody recognizes a protein encoded by a gene member of the Ser/Thr protein kinase family. This protein kinase is highly similar to the gene products of *S. cerevisiae* cdc28, and *S. pombe* cdc2. It is a catalytic subunit of the cyclin-dependent protein kinase complex, whose activity is restricted to the G1-S phase, and essential for cell cycle G1/S phase transition. This protein associates with and regulated by the regulatory subunits of the complex including cyclin A or E, CDK inhibitor p21Cip1 (CDKN1A) and p27Kip1 (CDKN1B). Its activity is also regulated by its protein phosphorylation. Two alternatively spliced variants and multiple transcription initiation sites of this gene have been reported.