

**Anti-Cdk2 Picoband Antibody**  
**Catalog # ABO12221****Specification**

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**Anti-Cdk2 Picoband Antibody - Product Information**

Application	WB, IHC-P
Primary Accession	<a href="#">P24941</a>
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized

**Description**

Rabbit IgG polyclonal antibody for Cyclin-dependent kinase 2(CDK2) detection. Tested with WB, IHC-P in Human;Mouse;Rat.

**Reconstitution**

Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

**Anti-Cdk2 Picoband Antibody - Additional Information**

**Gene ID** 1017

**Other Names**

Cyclin-dependent kinase 2, 2.7.11.22, Cell division protein kinase 2, p33 protein kinase, CDK2, CDKN2

**Calculated MW**

33930 MW KDa

**Application Details**

Immunohistochemistry(Paraffin-embedded Section), 0.5-1 µg/ml, Human, Mouse, Rat, By Heat  
Western blot, 0.1-0.5 µg/ml, Human, Rat

**Subcellular Localization**

Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Nucleus, Cajal body. Cytoplasm. Endosome. 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).

**Protein Name**

Cyclin-dependent kinase 2

**Contents**

Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg NaN3.

**Immunogen**

E.coli-derived human Cdk2 recombinant protein (Position: E81-L298). Human Cdk2 shares 98.6% amino acid (aa) sequence identity with rat Cdk2.

**Purification**

Immunogen affinity purified.

**Cross Reactivity**

No cross reactivity with other proteins

**Storage**

**At -20°C for one year. After r°Constitution, at 4°C for one month. It°Can also be aliquotted and stored frozen at -20°C for a longer time.Avoid repeated freezing and thawing.**

**Sequence Similarities**

Belongs to the protein kinase superfamily. CMGC Ser/Thr protein kinase family. CDC2/CDKX subfamily.

**Anti-Cdk2 Picoband 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>).

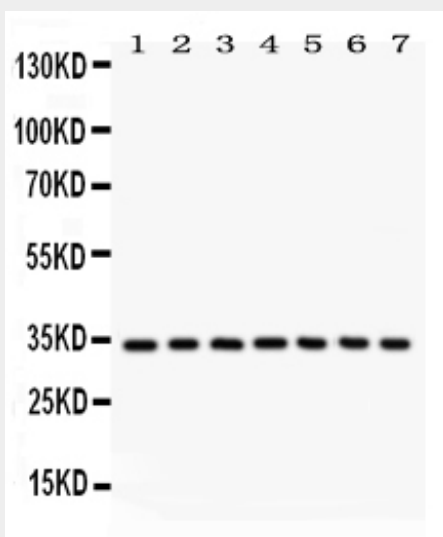
**Cellular Location**

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)

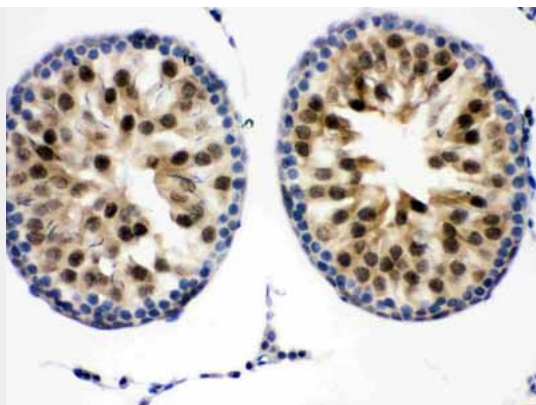
**Anti-Cdk2 Picoband Antibody - Protocols**

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

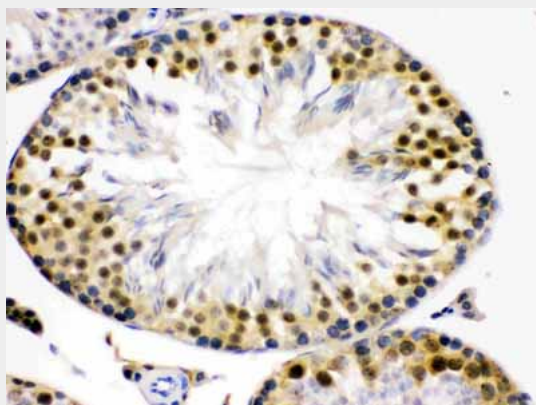
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

**Anti-Cdk2 Picoband Antibody - Images**

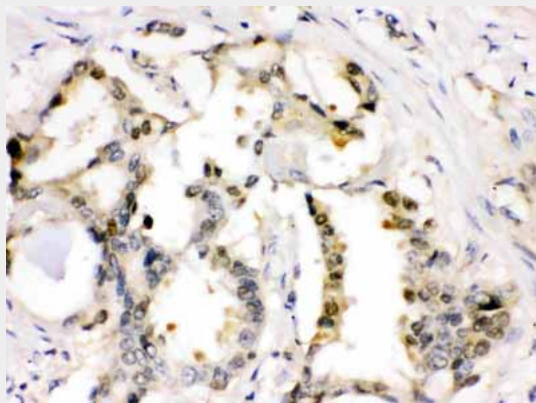
Anti- Cdk2 Picoband antibody, ABO12221, Western blottingAll lanes: Anti Cdk2 (ABO12221) at 0.5ug/ml  
Lane 1: Rat Kidney Tissue Lysate at 50ug  
Lane 2: Rat Liver Tissue Lysate at 50ug  
Lane 3: Human Placenta Tissue Lysate at 50ug  
Lane 4: HELA Whole Cell Lysate at 40ug  
Lane 5: HUT Whole Cell Lysate at 40ug  
Lane 6: JURKAT Whole Cell Lysate at 40ug  
Lane 7: A549 Whole Cell Lysate at 40ug  
Predicted bind size: 34KDObserved bind size: 34KD



Anti- Cdk2 Picoband antibody, ABO12221,IHC(P)IHC(P): Mouse Testis Tissue



Anti- Cdk2 Picoband antibody, ABO12221,IHC(P)IHC(P): Rat Testis Tissue



Anti- Cdk2 Picoband antibody, ABO12221,IHC(P)IHC(P): Human Lung Cancer Tissue

#### **Anti-Cdk2 Picoband Antibody - Background**

CDK2, Cyclin-Dependent Kinase2, is also known as P33. The CDK2 protein was highly homologous to p34(CDC2) kinase and more significantly homologous to *Xenopus* Eg1 kinase, suggesting that CDK2 is the human homolog of Eg1. The CDK2 gene is mapped to 12q13, the same region to which the CDK4 gene maps. Human cyclin A binds independently to 2 kinases, p34(cdc2) or p33. In adenovirus-transformed cells, the viral E1A oncoprotein seems to associate with p33/cyclin A but not with p34(cdc2)/cyclin A. The gene for p33 shares 65% sequence identity with p34(cdc2). P33(cdk2) plays a unique role in cell cycle regulation of vertebrate cells.