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KD-Validated Anti-Cyclin dependent kinase 2 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1095

Specification

KD-Validated Anti-Cyclin dependent kinase 2 Rabbit Monoclonal Antibody - Product Information

Application	**WB, FC, ICC**
Primary Accession	P24941
Reactivity	**Rat, Human, Mouse**
Clonality	**Monoclonal**
Isotype	**Rabbit IgG**
Calculated MW	**Predicted, 34 kDa , observed, 34 kDa KDa**
Gene Name	**CDK2**
Aliases	**CDK2; Cyclin Dependent Kinase 2; Cell Division Protein Kinase; Cyclin-Dependent Kinase; P33 Protein Kinase; EC 2.7.11.22; CDKN2; Cdc2-Related Protein Kinase; P33(CDK2); EC 2.7.11**
Immunogen	**A synthesized peptide derived from human CDK2**

KD-Validated Anti-Cyclin dependent kinase 2 Rabbit Monoclonal 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

KD-Validated Anti-Cyclin dependent kinase 2 Rabbit Monoclonal 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:<a href="http://www.uniprot.org/citations/17495531"

target="_blank">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, EZH2 (PubMed:10499802, PubMed:10995386, PubMed:10995387, PubMed:11051553, PubMed:11113184, PubMed:12944431, PubMed:15800615, PubMed:19966300, PubMed:20935635, PubMed:21262353, PubMed:21596315, 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)(2)D(3)

KD-Validated Anti-Cyclin dependent kinase 2 Rabbit Monoclonal 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 Cytomety
- Cell Culture

KD-Validated Anti-Cyclin dependent kinase 2 Rabbit Monoclonal Antibody - Images

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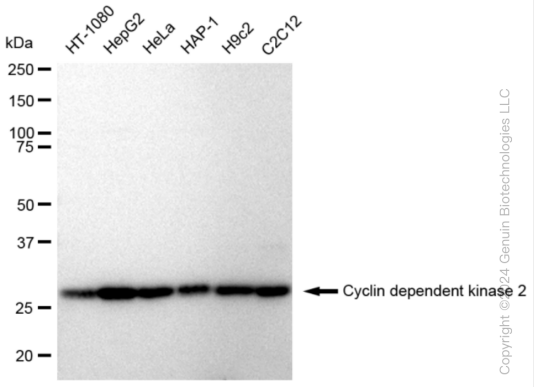
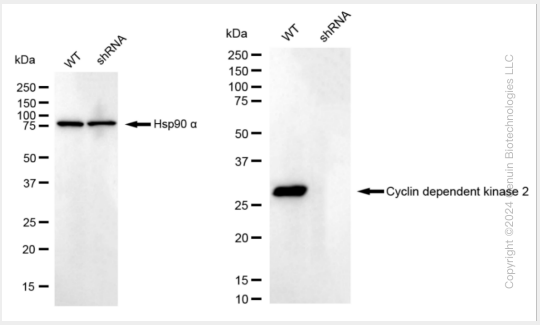
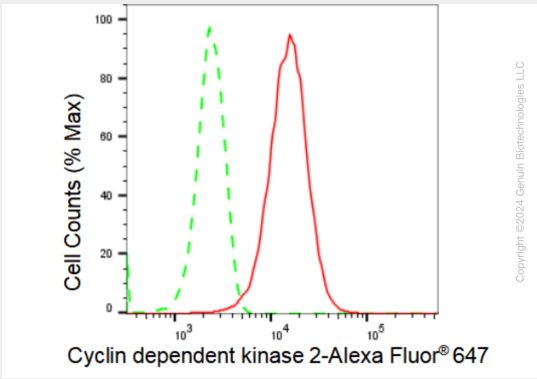


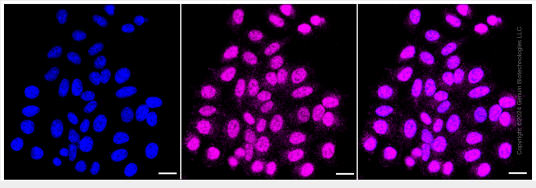
Western blotting analysis using anti-Cyclin dependent kinase 2 antibody (Cat#AGI1095). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-Cyclin dependent kinase 2 antibody (Cat#AGI1095, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Western blotting analysis using anti-Cyclin dependent kinase 2 antibody (Cat#AGI1095). Cyclin dependent kinase 2 expression in wild type (WT) and cyclin dependent kinase 2 shRNA knockdown (KD) HeLa cells with 30 µg of total cell lysates. β-Tubulin serves as a loading control. The blot was incubated with anti-Cyclin dependent kinase 2 antibody (Cat#AGI1095, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Flow cytometric analysis of Cyclin dependent kinase 2 expression in HepG2 cells using Cyclin dependent kinase 2 antibody (Cat#AGI1095, 1:2,000). Green, isotype control; red, Cyclin dependent kinase 2.



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Immunocytochemical staining of HepG2 cells with Cyclin dependent kinase 2 antibody (Cat#AGI1095, 1:1,000). Nuclei were stained blue with DAPI; Cyclin dependent kinase 2 was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein abundance based on laser Intensity and smart gain: Medium. Scale bar: 20 µm.