

Rabbit Anti-CDK2 antibody

SL0757R

Product Name	CDK2
Chinese Name	周期素依赖性激酶 2 抗体
Alias	Cdc2 related protein kinase; cdc2-related protein kinase; Cdk 2; CDK2_HUMAN; Cell division kinase 2; Cell division kinase 2; Cell division protein kinase 2; Cyclin dependent kinase 2; cyclin dependent kinase 2-alpha; Cyclin-dependent kinase 2; p33 protein kinase; p33(CDK2).
Research Area	Tumour Cell biology Chromatin and nuclear signals Signal transduction Cyclin Kinases and Phosphatases
Immunogen Species	Rabbit
Clonality	Polyclonal
React Species	Human,Rat(predicted:Mouse,Pig,Cow,Horse,Rabbit)
Applications	WB=1:500-2000,Flow-Cyt=3μg/Test (Paraffin sections need antigen repair) not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Theoretical molecular weight	33kDa
Cellular localization	The nucleus cytoplasmic
Form	Liquid
Concentration	1mg/ml
immunogen	KLH conjugated synthetic peptide derived from human CDK2: 1-100/298
Lsotype	IgG
Purification	affinity purified by Protein A
Buffer Solution	Human,Rat(predicted:Mouse,Pig,Cow,Horse,Rabbit)1M TBS(pH7.4) with 1% BSA, Human,Rat(predicted:Mouse,Pig,Cow,Horse,Rabbit)3% Proclin300 and 50% Glycerol.
Storage	Shipped at 4°C. Store at -20 °C for one year. Avoid repeated freeze/thaw cycles.
Attention	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.

PubMed

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The protein encoded by this gene is a 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. [provided by RefSeq, Jul 2008].

Function:

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. Interacts with cyclins A, B1, B3, D, or E. 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

Product Detail

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.

Subunit:

Found in a complex with CABLES1, CCNA1 and CCNE1. Interacts with CABLES1. Interacts with UHRF2. Part of a complex consisting of UHRF2, CDK2 and CCNE1. Interacts with the Speedy/Ringo proteins SPDYA and SPDYC. Found in a complex with both SPDYA and CDKN1B/KIP1. Binds to RB1 and CDK7. Binding to CDKN1A (p21) leads to CDK2/cyclin E inactivation at the G1-S phase DNA damage checkpoint, thereby arresting cells at the G1-S transition during DNA repair. Associated with PTPN6 and beta-catenin/CTNNB1. Interacts with CACUL1. May interact with CEP63.

Subcellular Location:

Cytoplasm, cytoskeleton, 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)₂D₃.

Post-translational modifications:

Phosphorylated at Thr-160 by CDK7 in a CAK complex. Phosphorylation at Thr-160 promotes kinase activity, whereas phosphorylation at Tyr-15 by WEE1 reduces slightly kinase activity. Phosphorylated on Thr-14 and Tyr-15 during S and G2 phases before being dephosphorylated by CDC25A. Nitrosylated after treatment with nitric oxide (DETA-NO).

Similarity:

Belongs to the protein kinase superfamily. CMGC Ser/Thr protein kinase family. CDC2/CDKX subfamily. Contains 1 protein kinase domain.

SWISS:

P24941

Gene ID:

1017

Database links:

[Entrez Gene: 1017](#) Human

[Entrez Gene: 12566](#) Mouse

[Entrez Gene: 362817](#) Rat

[Oimim: 116953](#) Human

[SwissProt: P24941](#) Human

[SwissProt: P97377](#) Mouse

[SwissProt: Q63699](#) Rat

[Unigene: 19192](#) Human

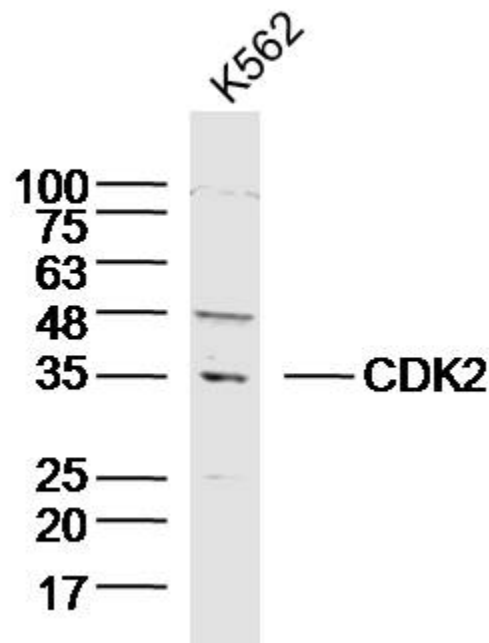
[Unigene: 689624](#) Human

[Unigene: 111326](#) Mouse

[Unigene: 104460](#) Rat

Cdk2 为周期素依赖激酶 2(Cyclin-Dependent Kinase 2)，主要参与细胞周期的调控，在 Cell differentiation、有丝分裂中起重要作用，目前主要用于各种 Tumour 的研究。主要定位于 The nucleus。

Product
Picture



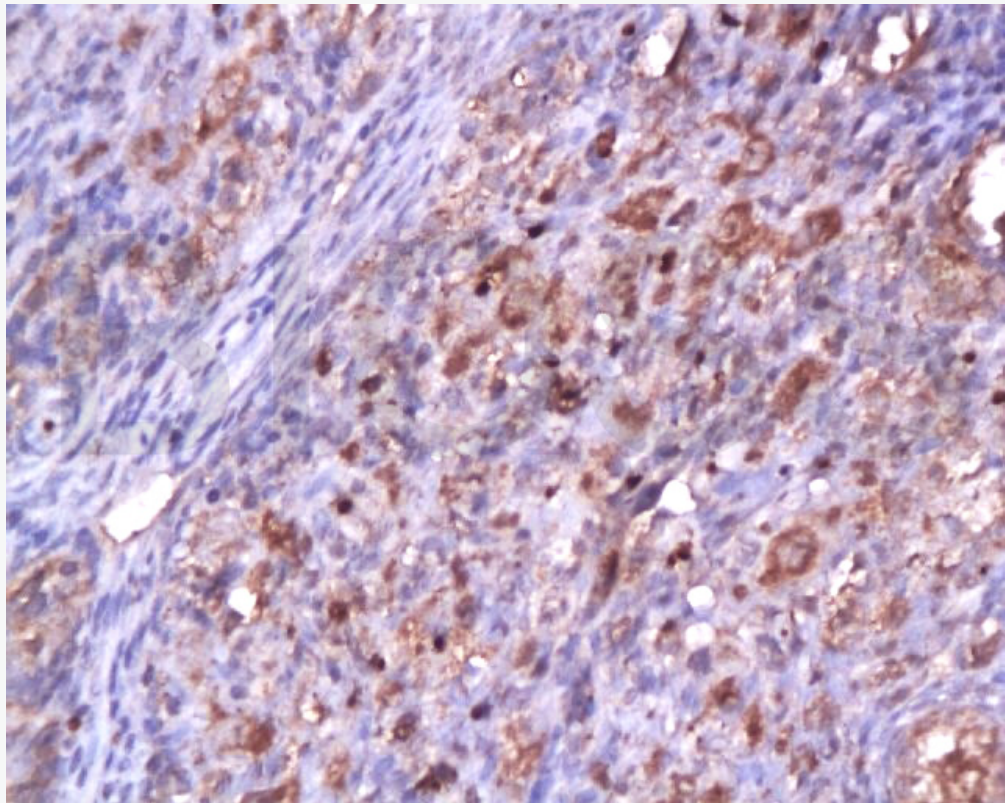
Sample:K562 Cell (Human) Lysate at 40 ug

Primary: Anti-CDK2(SL0757R)at 1/300 dilution

Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution

Predicted band size: 33kD

Observed band size: 35kD



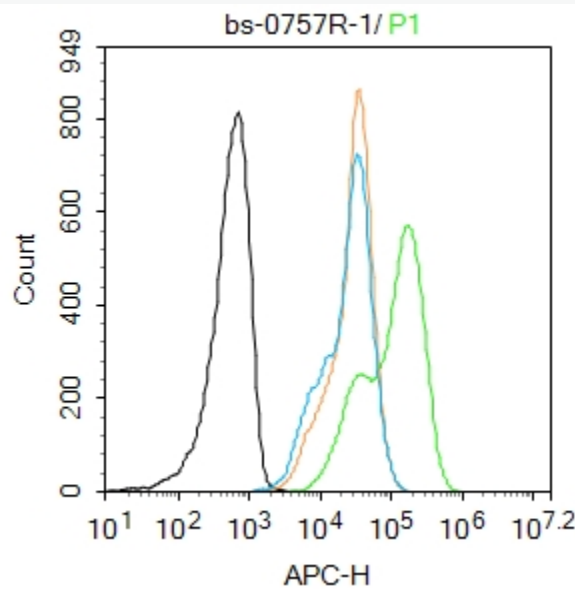
Tissue/cell: rat ovary tissue; 4% Paraformaldehyde-fixed and paraffin-embedded;

Antigen retrieval: citrate buffer

(Human,Rat(predicted:Mouse,Pig,Cow,Horse,Rabbit)1M, pH 6.0), Boiling bathing for 15min; Block endogenous peroxidase by 3% Hydrogen peroxide for 30min; Blocking buffer (normal goat serum,C-0005) at 37°C for 20 min;

Incubation: Anti-CDK2 Polyclonal Antibody, Unconjugated(SL0757R)

1:200, overnight at 4°C, followed by conjugation to the secondary antibody(SP-0023) and DAB(C-0010) staining



Blank control:Molt4.

Primary Antibody (green line): Rabbit Anti-CDK2 antibody (SL0757R)

Dilution: 1µg /10⁶ cells;

Isotype Control Antibody (orange line): Rabbit IgG .

Secondary Antibody : Goat anti-rabbit IgG-AF647

Dilution: 1µg /test.

Protocol

The cells were fixed with 4% PFA (10min at room temperature)and then permeabilized with 0.1% PBST for 20 min at room temperature. The cells

were then incubated in 5%BSA to block non-specific protein-protein interactions for 30 min at room temperature .Cells stained with Primary Antibody for 30 min at room temperature. The secondary antibody used for 40 min at room temperature. Acquisition of 20,000 events was performed.