



Rabbit Anti-Phospho-CDK2

SL5277R-FITC

Product Name:	Anti-Phospho-CDK2 (Thr14)/FITC
Chinese Name:	FITC标记的磷酸化周期素依赖性激酶2抗体
Alias:	p-CDH2 (Thr14); CDH2 (phospho-Thr14); CDH2 (phospho-T14); Cdc2 related protein kinase; cdc2-related protein kinase; Cdk 2; CDK2; 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).
Organism Species:	Rabbit
Clonality:	Polyclonal
React Species:	Human,Mouse,Rat,Dog,Cow,Horse,Rabbit,
Applications:	IF=1:50-200 not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Molecular weight:	34kDa
Form:	Lyophilized or Liquid
Concentration:	1mg/ml
immunogen:	KLH conjugated Synthesised phosphopeptide derived from human CDK2 around the phosphorylation site of Thr14 [EG(p-T)YG]
Lsotype:	IgG
Purification:	affinity purified by Protein A
Storage Buffer:	0.01M TBS(pH7.4) with 1% BSA, 0.03% Proclin300 and 50% Glycerol.
Storage:	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. The lyophilized antibody is stable at room temperature for at least one month and for greater than a year when kept at -20°C. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.
Product Detail:	background: 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 <i>S. cerevisiae</i> cdc28, and <i>S. pombe</i> 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. cdk2 is a cell cycle protein closely related to Cdc2 (cdk1) that has proved useful as a marker of proliferation. cdk2 binds cyclin type A and E proteins and controls progression into S-phase.

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 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 (By similarity). 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)(2)D(3).

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.

Database links:

[Entrez Gene: 1017](#)Human

[Entrez Gene: 12566](#)Mouse

[Entrez Gene: 362817](#)Rat

[Omim: 116953](#)Human

[SwissProt: P24941](#)Human

[SwissProt: P97377](#)Mouse

[SwissProt: Q63699](#)Rat

[Unigene: 19192](#)Human

[Unigene: 689624](#)Human

[Unigene: 111326](#)Mouse

[Unigene: 104460](#)Rat

Important Note:

This product as supplied is intended for research use only, not for use in human,

therapeutic or diagnostic applications.

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。

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