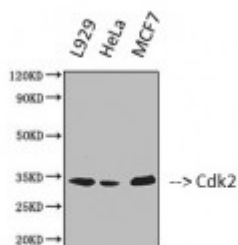


Anti-Cdk2 antibody



Western Blot (WB) analysis of 1. L929 2. HeLa 3. MCF7 using Cdk2 Polyclonal Antibody. (STJ92197)



Description

Cdk2 is a protein encoded by the CDK2 gene which is approximately 33,9 kDa. Cdk2 is localised to the cytoplasm and nucleus. It is involved in CDK-mediated phosphorylation and removal of Cdc6, DNA double-strand break repair and cell cycle regulation. It is the catalytic subunit of the cyclin-dependent protein kinase complex, which regulates progression through the cell cycle, it is especially critical during the G1 to S phase transition. Cdk2 is expressed in skin, intestine, nervous system, lung and liver. Mutations in the CDK2 gene may result in glioblastoma and retinal cancer. STJ92197 was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific immunogen. This polyclonal antibody detects endogenous levels of Cdk2 protein.

Model	STJ92197
Host	Rabbit
Reactivity	Human, Mouse, Rat
Applications	ELISA, IF, IHC, WB
Immunogen	Synthesized peptide derived from human Cdk2
Immunogen Region	200-280 aa, C-terminal
Gene ID	1017
Gene Symbol	CDK2
Dilution range	WB 1:500-1:2000IHC 1:100-1:300IF 1:200-1:1000ELISA 1:20000
Specificity	Cdk2 Polyclonal Antibody detects endogenous levels of Cdk2 protein.
Purification	The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific immunogen.

Note	For Research Use Only (RUO).
Protein Name	Cyclin-dependent kinase 2 Cell division protein kinase 2 p33 protein kinase
Molecular Weight	32 kDa
Clonality	Polyclonal
Conjugation	Unconjugated
Isotype	IgG
Formulation	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.02% sodium azide.
Concentration	1 mg/ml
Storage Instruction	Store at -20°C, and avoid repeat freeze-thaw cycles.
Database Links	HGNC:1771OMIM:116953
Alternative Names	Cyclin-dependent kinase 2 Cell division protein kinase 2 p33 protein kinase
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. 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 . 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. Phosphorylates FOXP3 and negatively regulates its transcriptional activity and protein stability . Phosphorylates CDK2AP2 .

Cellular 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).

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).

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