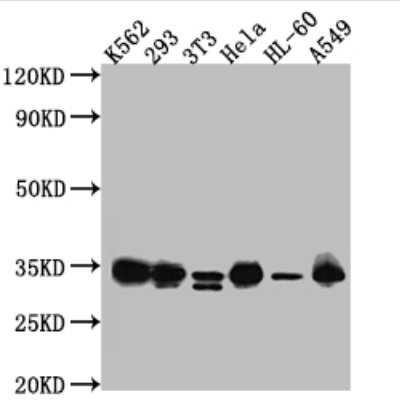
CDK2 Recombinant Monoclonal Antibody

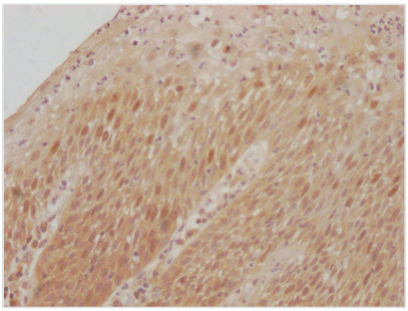
Product Code	CSB-RA961467A0HU
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	P24941
Immunogen	A synthesized peptide derived from human Cdk2
Species Reactivity	Human, Mouse
Tested Applications	ELISA, WB, IHC; Recommended dilution: WB:1:500-1:5000, IHC:1:50-1:200
Relevance	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 (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. Phosphorylates FOXP3 and negatively regulates its transcriptional activity and protein stability (By similarity). Phosphorylates CDK2AP2 (PubMed:12944431).
Form	Liquid

Conjugate	Non-conjugated
Storage Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purification Method	Affinity-chromatography
Isotype	Rabbit IgG
Clonality	Monoclonal
Product Type	Recombinant Antibody
Immunogen Species	Homo sapiens (Human)
Research Area	Epigenetics and Nuclear Signaling; Neuroscience; Cancer; Cell biology; Signal transduction
Gene Names	CDK2
Clone No.	6A5

Image



Western Blot
Positive WB detected in: K562 whole cell lysate, HEK293 whole cell lysate, NIH/3T3 whole cell lysate, Hela whole cell lysate, HL-60 whole cell lysate, A549 whole cell lysate
All lanes: CDK2 antibody at 1:1000
Secondary
Goat polyclonal to rabbit IgG at 1/50000 dilution
Predicted band size: 34, 31 kDa
Observed band size: 34 kDa



IHC image of CSB-RA961467A0HU diluted at 1:100 and staining in paraffin-embedded human tonsil tissue performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4? overnight. The primary is detected by a Goat anti-rabbit IgG polymer labeled by HRP and visualized using 0.05% DAB.

Description

The process of producing the CDK2 recombinant antibody involves several stages: sequencing the CDK2 monoclonal antibody-encoding gene, cloning the gene into a plasmid vector, introducing the recombinant vector into a host cell line, and finally, purifying the CDK2 recombinant monoclonal antibody from the supernatant of the cell culture using affinity chromatography. The CDK2 monoclonal antibody is developed from hybridomas that produce the CDK2 antibody, and during its production, a synthesized peptide derived from human CDK2 is used as the immunogen. This CDK2 recombinant monoclonal antibody is highly recommended for use in ELISA, WB, and IHC applications for the

detection of human and mouse CDK2 proteins.

The CDK2 protein plays a key role in regulating cell division by phosphorylating a variety of substrates involved in cell cycle progression. CDK2 forms a complex with cyclin E or cyclin A and phosphorylates a number of proteins, including the retinoblastoma protein (Rb) and other transcription factors, resulting in the progression of cells through the G1/S checkpoint and entry into the S phase. CDK2 is regulated by a variety of mechanisms, including cyclin-dependent kinase inhibitors (CKIs), such as p21 and p27, which bind and inhibit CDK2 activity. In addition, CDK2 activity is also regulated by phosphorylation and dephosphorylation events, which can affect its stability and activity. Dysregulation of CDK2 activity has been implicated in a variety of diseases, including cancer, and targeting CDK2 has become an important strategy in cancer therapy.