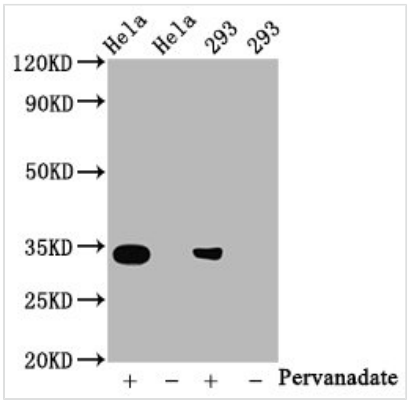
Phospho-CDK2 (Y15) Antibody

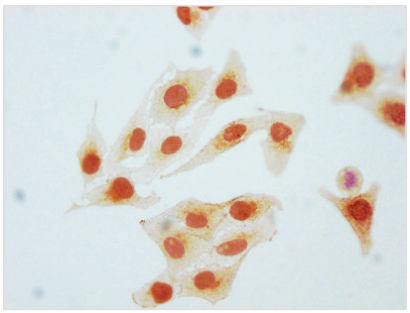
Product Code	CSB-RA005061A15phHU
Abbreviation	Cyclin-dependent kinase 2
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	P24941
Immunogen	A synthesized peptide derived from Human Phospho-CDK2 (Y15)
Species Reactivity	Human
Tested Applications	ELISA, WB, IHC, IP; Recommended dilution: WB:1:500-1:5000, IHC:1:50-1:200, IP:1:200-1:1000
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	Cell Biology
Gene Names	CDK2
Accession NO.	2C4

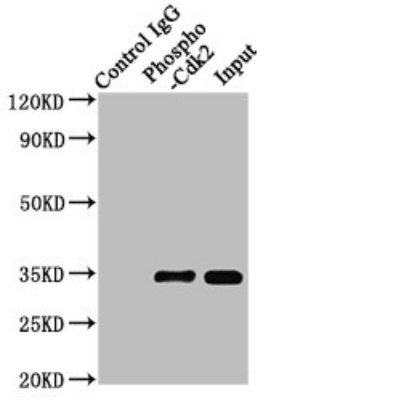
Image



Western Blot
Positive WB detected in:Hela whole cell lysate, 293 whole cell lysate(treated with Pervanadate or not)
All lanes:Phospho-CDK2 antibody at 0.8μg/ml
Secondary
Goat polyclonal to rabbit IgG at 1/50000 dilution
Predicted band size: 34 KDa
Observed band size: 34 KDa



Immunocytochemistry analysis of CSB-RA005061A15phHU diluted at 1:80 and staining in Hela cells(treated with Pervanadate) performed on a Leica BondTM system. The cells were fixed in 4% formaldehyde, permeabilized using 0.2% Triton X-100 and blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4°C overnight. The primary is detected by a biotinylated secondary antibody and visualized using an HRP conjugated SP system.



Immunoprecipitating Phospho-CDK2 in Hela whole cell lysate treated with Pervanadate
Lane 1: Rabbit control IgG(1μg)instead of CSB-RA005061A15phHU in Hela whole cell lysate treated with Pervanadate.For western blotting,a HRP-conjugated Protein G antibody was used as the secondary antibody (1/2000)
Lane 2: CSB-RA005061A15phHU(3μg)+ Hela whole cell lysate treated with Pervanadate(1mg)
Lane 3: Hela whole cell lysate treated with Pervanadate(20μg)

Description

CUSABIO got the DNA sequence of the pY15-CDK2 monoclonal antibody that was produced from the splenocytes generated by the human CDK2 synthesized phosphopeptide immunization. The DNA sequence was cloned into the plasmid and then transfected into cell lines for in vitro expression. The product is the phospho-CDK2 (Y15) recombinant monoclonal antibody. It is a rabbit IgG antibody purified using the affinity-chromatography method. This anti-pY15-CDK2 antibody is recommended for ELISA WB, IHC, and IP applications and detects the human CDK2 phosphorylated at Tyr 15 residue.

CDK2, a small serine/threonine kinase, regulates the initiation and progression of the S phase of the cell cycle, and the regulation of CDK2 involves cyclin binding and phosphorylation. Several mechanisms, including phosphorylation and dephosphorylation processes, regulate CDK2 activity. Cables increases Wee1-mediated CDK2 tyrosine 15 phosphorylation, thus decreasing CDK2 kinase activity and inhibiting cell growth. CDK2 is inactivated by phosphorylation of T14 and Y15, and activation of CDK2 needs dephosphorylation of both T14 and Y15 by Cdc25, as well as phosphorylation of T160 by CDK activating kinase (CAK).