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Mouse Cdk1 Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP16160b

Product Information

Application	WB, E
Primary Accession	P11440
Other Accession	P39951, NP_031685.2
Reactivity	Human, Rat, Mouse
Predicted	Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB35464
Calculated MW	34107
Antigen Region	269-297

Additional Information

Gene ID	12534
Other Names	Cyclin-dependent kinase 1, CDK1, Cell division control protein 2 homolog, Cell division protein kinase 1, p34 protein kinase, Cdk1, Cdc2, Cdc2a, Cdkn1
Target/Specificity	This Mouse Cdk1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 269-297 amino acids from the C-terminal region of mouse Cdk1.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	Mouse Cdk1 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	Cdk1
Synonyms	Cdc2 {ECO:0000303|PubMed:2208288}, Cdc2a

Function

Plays a key role in the control of the eukaryotic cell cycle by modulating the centrosome cycle as well as mitotic onset; promotes G2-M transition via association with multiple interphase cyclins (PubMed:16007079, PubMed:17700700, PubMed:17942597, PubMed:22405274). Phosphorylates PARVA/actopaxin, APC, AMPH, APC, BARD1, Bcl-xL/BCL2L1, BRCA2, CALD1, CASP8, CDC7, CDC20, CDC25A, CDC25C, CC2D1A, CENPA, CSNK2 proteins/CKII, FZR1/CDH1, CDK7, CEBPB, CHAMP1, DMD/dystrophin, EEF1 proteins/EF-1, EZH2, KIF11/EG5, EGFR, FANCG, FOS, GFAP, GOLGA2/GM130, GRASP1, UBE2A/hHR6A, HIST1H1 proteins/histone H1, HMGA1, HIVEP3/KRC, KAT5, LMNA, LMNB, LBR, MKI67, LATS1, MAP1B, MAP4, MARCKS, MCM2, MCM4, MKLP1, MLST8, MYB, NEFH, NFIC, NPC/nuclear pore complex, PITPNM1/NIR2, NPM1, NCL, NUCKS1, NPM1/numatrin, ORC1, PRKAR2A, EEF1E1/p18, EIF3F/p47, p53/TP53, NONO/p54NRB, PAPOLA, PLEC/plectin, RB1, TPPP, UL40/R2, RAB4A, RAP1GAP, RBBP8/CtIP, RCC1, RPS6KB1/S6K1, KHDRBS1/SAM68, ESPL1, SKI, BIRC5/survivin, STIP1, TEX14, beta-tubulins, MAPT/TAU, NEDD1, VIM/vimentin, TK1, FOXO1, RUNX1/AML1, SAMHD1, SIRT2, CGAS, ZAR1 and RUNX2 (PubMed:17942597, PubMed:22405274, PubMed:36264786). CDK1/CDC2- cyclin-B controls pronuclear union in interphase fertilized eggs (By similarity). Essential for early stages of embryonic development (By similarity). During G2 and early mitosis, CDC25A/B/C-mediated dephosphorylation activates CDK1/cyclin complexes which phosphorylate several substrates that trigger at least centrosome separation, Golgi dynamics, nuclear envelope breakdown and chromosome condensation (PubMed:16007079, PubMed:17700700). Once chromosomes are condensed and aligned at the metaphase plate, CDK1 activity is switched off by WEE1- and PKMYT1-mediated phosphorylation to allow sister chromatid separation, chromosome decondensation, reformation of the nuclear envelope and cytokinesis (By similarity). Phosphorylates KRT5 during prometaphase and metaphase (PubMed:29518391). Inactivated by PKR/EIF2AK2- and WEE1-mediated phosphorylation upon DNA damage to stop cell cycle and genome replication at the G2 checkpoint thus facilitating DNA repair (By similarity). Reactivated after successful DNA repair through WIP1-dependent signaling leading to CDC25A/B/C- mediated dephosphorylation and restoring cell cycle progression (By similarity). Catalyzes lamin (LMNA, LMNB1 and LMNB2) phosphorylation at the onset of mitosis, promoting nuclear envelope breakdown (By similarity). In proliferating cells, CDK1-mediated FOXO1 phosphorylation at the G2-M phase represses FOXO1 interaction with 14- 3-3 proteins and thereby promotes FOXO1 nuclear accumulation and transcription factor activity, leading to cell death of postmitotic neurons (By similarity). The phosphorylation of beta-tubulins regulates microtubule dynamics during mitosis (By similarity). NEDD1 phosphorylation promotes PLK1-mediated NEDD1 phosphorylation and subsequent targeting of the gamma-tubulin ring complex (gTuRC) to the centrosome, an important step for spindle formation (By similarity). In addition, CC2D1A phosphorylation regulates CC2D1A spindle pole localization and association with SCC1/RAD21 and centriole cohesion during mitosis (By similarity). The phosphorylation of Bcl-xL/BCL2L1 after prolongated G2 arrest upon DNA damage triggers apoptosis (By similarity). In contrast, CASP8 phosphorylation during mitosis prevents its activation by proteolysis and subsequent apoptosis (By similarity). This phosphorylation occurs in cancer cell lines, as well as in primary breast tissues and lymphocytes (By similarity). EZH2 phosphorylation promotes H3K27me3 maintenance and epigenetic gene silencing (By similarity). CALD1 phosphorylation promotes Schwann cell migration during peripheral nerve regeneration (By similarity). CDK1-cyclin-B complex phosphorylates NCKAP5L and mediates its dissociation from centrosomes during mitosis (By similarity). Regulates the amplitude of the cyclic expression of the core clock gene BMAL1 by phosphorylating its transcriptional repressor NR1D1, and this phosphorylation is necessary for SCF(FBXW7)-mediated ubiquitination and proteasomal degradation of NR1D1 (By similarity). Phosphorylates EML3 at 'Thr-881' which is essential for its

	interaction with HAUS augmin-like complex and TUBG1 (By similarity). Phosphorylates CGAS during mitosis, leading to its inhibition, thereby preventing CGAS activation by self DNA during mitosis (By similarity). Phosphorylates SKA3 during mitosis which promotes SKA3 binding to the NDC80 complex and anchoring of the SKA complex to kinetochores, to enable stable attachment of mitotic spindle microtubules to kinetochores (By similarity).
Cellular Location	Nucleus. Cytoplasm. Mitochondrion. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome {ECO:0000250|UniProtKB:P06493} Cytoplasm, cytoskeleton, spindle {ECO:0000250|UniProtKB:P06493} Note=Colocalizes with SIRT2 on centrosome during prophase and on splindle fibers during metaphase of the mitotic cell cycle (By similarity). Cytoplasmic during the interphase. Reversibly translocated from cytoplasm to nucleus when phosphorylated before G2-M transition when associated with cyclin-B1. Accumulates in mitochondria in G2- arrested cells upon DNA-damage. {ECO:0000250|UniProtKB:P06493}

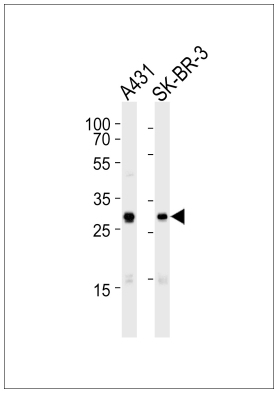
Background

Cdk1 plays a key role in the control of the eukaryotic cell cycle. It is required in higher cells for entry into S-phase and mitosis. p34 is a component of the kinase complex that phosphorylates the repetitive C-terminus of RNA polymerase II.

References

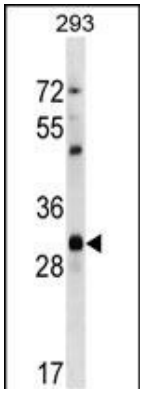
Walker, M.P., et al. J. Endocrinol. 207(2):225-235(2010)
Sansregret, L., et al. J. Biol. Chem. 285(43):32834-32843(2010)
Van Horn, R.D., et al. J. Biol. Chem. 285(28):21849-21857(2010)
Risley, M.D., et al. Dev. Biol. 342(2):146-156(2010)
Xu, X.Y., et al. Dev. Dyn. 238(12):3025-3034(2009)

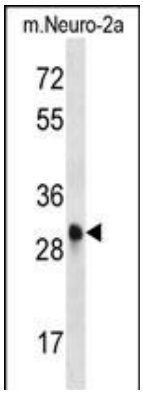
Images



Western blot analysis of lysates from A431, SK-BR-3 cell line (from left to right), using Mouse Cdk1 Antibody (C-term)(Cat. #AP16160b). AP16160b was diluted at 1:1000 at each lane. A goat anti-rabbit IgG H&L(HRP) at 1:5000 dilution was used as the secondary antibody. Lysates at 35ug per lane.

Mouse Cdk1 Antibody (C-term) (Cat. #AP16160b) western blot analysis in 293 cell line lysates (35ug/lane).This demonstrates the Cdk1 antibody detected the Cdk1 protein (arrow).





Mouse Cdk1 Antibody (C-term) (Cat. #AP16160b) western blot analysis in mouse Neuro-2a cell line lysates (35ug/lane).This demonstrates the Cdk1 antibody detected the Cdk1 protein (arrow).

Citations

- The substitution of SERCA2 redox cysteine 674 promotes pulmonary vascular remodeling by activating IRE1 /XBP1s pathway