10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Anti-Cyclin D1 antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP50933

Product Information

Application	WB, IHC-P, IHC-F, IF, ICC, E
Primary Accession	P24385
Reactivity	Human, Mouse, Rat, Dog
Host	Rabbit
Clonality	polyclonal
Calculated MW	33729
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human Cyclin D1
Epitope Specificity	61-110/295
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Nucleus. Cytoplasm. Membrane. Note=CyclinD-CDK4 complexes accumulate at the nuclear membrane and are thentranslocated to the nucleus through interaction with KIP/CIP familymembers.
SIMILARITY	Belongs to the cyclin family. Cyclin D subfamily.
SUBUNIT	Interacts with FBXO4. Interacts witheither CDK4 or CDK6 protein kinase to form a serine/threoninekinase holoenzyme complex. The cyclin subunit imparts substratespecificity to the complex. Component of the ternary complexCCND1/CDK4/CDKN1B required for nuclear translocation and modulationof CDK4-mediated kinase activity. Interacts directly with CDKN1B.Interacts with UHRF2; the interaction ubiquitinates CCND1 andappears to occur independently of phosphorylation. Can form similarcomplexes with either CDKN1A or CDKN2A. Interacts with USP2.
Post-translational modifications	Phosphorylation at Thr-286 by MAP kinases is required forubiquitination and degradation following DNA damage. It probablyplays an essential role for recognition by the FBXO31 component ofSCF (SKP1-cullin-F-box) protein ligase complex. Ubiquitinated, primarily as 'Lys-48'-linkedpolyubiquitination. Ubiquitinated by a SCF (SKP1-CUL1-F-boxprotein) ubiquitin-protein ligase complex containing FBXO4 andCRYAB. Following DNA damage it is ubiquitinated by some SCF(SKP1-cullin-F-box) protein ligase complex containing FBXO31.SCF-type ubiquitination is dependent on Thr-286 phosphorylation (Bysimilarity). Ubiquitinated also by UHRF2 apparently in aphosphorylation-independent manner. Ubiquitination leads to itsdegradation and G1 arrest. Deubiquitinated by USP2; leading to itsstabilization.
DISEASE	Note=A chromosomal aberration involving CCND1 may be acause of B-lymphocytic malignancy, particularly mantle-celllymphoma (MCL). Translocation t(11;14)(q13;q32) with immunoglobulingene regions. Activation of CCND1 may be oncogenic by directlyaltering progression through the cell cycle. Note=A chromosomal aberration involving CCND1 may be acause of parathyroid adenomas. Translocation t(11;11)(q13;p15) withthe parathyroid hormone (PTH) enhancer. Defects in CCND1 are a cause of multiple myeloma

	(MM)[MIM:254500]. MM is a malignant tumor of plasma cells usuallyarising in the bone marrow and characterized by diffuse involvementof the skeletal system, hyperglobulinemia, Bence-Jones proteinuriaand anemia. Complications of multiple myeloma are bone pain,hypercalcemia, renal failure and spinal cord compression. Theaberrant antibodies that are produced lead to impaired humoralimmunity and patients have a high prevalence of infection.Amyloidosis may develop in some patients. Multiple myeloma is partof a spectrum of diseases ranging from monoclonal gammopathy ofunknown significance (MGUS) to plasma cell leukemia. Note=Achromosomal aberration involving CCND1 is found in multiplemyeloma. Translocation t(11;14)(q13;q32) with the IgH locus.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	The protein encoded by this gene belongs to the highly conserved cyclin family, whose members are characterized by a dramatic periodicity in protein abundance throughout the cell cycle. Cyclins function as regulators of CDK kinases. Different cyclins exhibit distinct expression and degradation patterns which contribute to the temporal coordination of each mitotic event. This cyclin forms a complex with and functions as a regulatory subunit of CDK4 or CDK6, whose activity is required for cell cycle G1/S transition. This protein has been shown to interact with tumor suppressor protein Rb and the expression of this gene is regulated positively by Rb. Mutations, amplification and overexpression of this gene, which alters cell cycle progression, are observed frequently in a variety of tumors and may contribute to tumorigenesis. [provided by RefSeq, Jul 2008].

Additional Information

Gene ID	595
Other Names	G1/S-specific cyclin-D1, B-cell lymphoma 1 protein, BCL-1, BCL-1 oncogene, PRAD1 oncogene, CCND1, BCL1, PRAD1
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,ICC=1:100,IF=1:100-500,Flow-Cyt=1 □g/Test,ELISA=1:5000-10000
Format	0.01M TBS(pH7.4) with 1% BSA, 0.09% (W/V) sodium azide and 50% Glyce
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. 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.

Protein Information

Name	CCND1 {ECO:0000303|PubMed:8204893, ECO:0000312|HGNC:HGNC:1582}
Function	Regulatory component of the cyclin D1-CDK4 (DC) complex that phosphorylates and inhibits members of the retinoblastoma (RB) protein family including RB1 and regulates the cell-cycle during G(1)/S transition (PubMed:1827756, PubMed:1833066, PubMed:19412162, PubMed:33854235, PubMed:8114739, PubMed:8302605). Phosphorylation of RB1 allows dissociation of the transcription factor E2F from the RB/E2F complex and the subsequent transcription of E2F target genes which are responsible for the progression through the G(1) phase (PubMed:1827756, PubMed:1833066, PubMed:19412162, PubMed:8114739, PubMed:8302605). Hypophosphorylates RB1 in early G(1) phase (PubMed:1827756,

	PubMed:1833066, PubMed:19412162, PubMed:8114739, PubMed:8302605). Cyclin D-CDK4 complexes are major integrators of various mitogenenic and antimitogenic signals (PubMed:1827756, PubMed:1833066, PubMed:19412162, PubMed:8302605). Also a substrate for SMAD3, phosphorylating SMAD3 in a cell-cycle-dependent manner and repressing its transcriptional activity (PubMed:15241418). Component of the ternary complex, cyclin D1/CDK4/CDKN1B, required for nuclear translocation and activity of the cyclin D-CDK4 complex (PubMed:9106657). Exhibits transcriptional corepressor activity with INSM1 on the NEUROD1 and INS promoters in a cell cycle-independent manner (PubMed:16569215, PubMed:18417529).
Cellular Location	Nucleus. Cytoplasm. Nucleus membrane. Note=Cyclin D-CDK4 complexes accumulate at the nuclear membrane and are then translocated to the nucleus through interaction with KIP/CIP family members

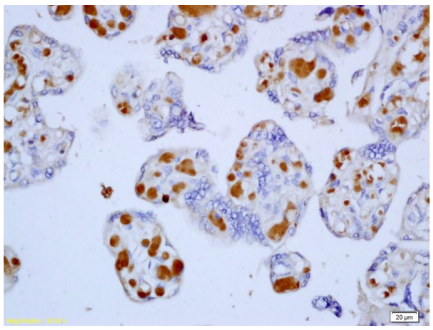
Background

Regulatory component of the cyclin D1-CDK4 (DC) complex that phosphorylates and inhibits members of the retinoblastoma (RB) protein family including RB1 and regulates the cell-cycle during G(1)/S transition. Phosphorylation of RB1 allows dissociation of the transcription factor E2F from the RB/E2F complex and the subsequent transcription of E2F target genes which are responsible for the progression through the G(1) phase. Hypophosphorylates RB1 in early G(1) phase. Cyclin D-CDK4 complexes are major integrators of various mitogenenic and antimitogenic signals. Also substrate for SMAD3, phosphorylating SMAD3 in a cell-cycle-dependent manner and repressing its transcriptional activity. Component of the ternary complex, cyclin D1/CDK4/CDKN1B, required for nuclear translocation and activity of the cyclin D-CDK4 complex. Exhibits transcriptional corepressor activity with INSM1 on the NEUROD1 and INS promoters in a cell cycle-independent manner.

References

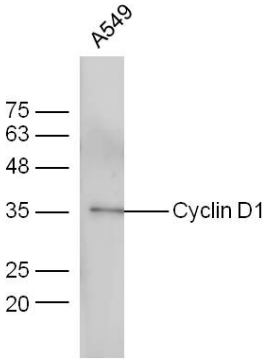
Motokura T.,et al.Nature 350:512-515(1991).
Lew D.J.,et al.Cell 66:1197-1206(1991).
Xiong Y.,et al.Cell 65:691-699(1991).
Withers D.A.,et al.Mol. Cell. Biol. 11:4846-4853(1991).
Rimokh R.,et al.Blood 83:3689-3696(1994).

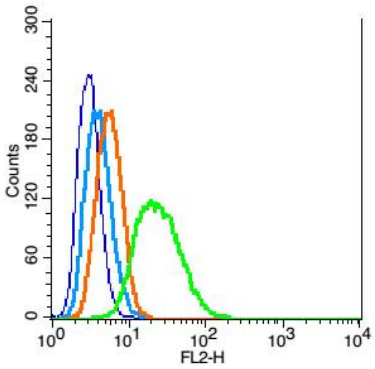
Images



Formalin-fixed and paraffin embedded human placenta tissue labeled with Anti-Cyclin D1 Polyclonal Antibody, Unconjugated (AP50933) at 1:200, followed by conjugation to the secondary antibody and DAB staining

A549 cells probed with Anti-Cyclin D1 Polyclonal Antibody AP50933 at 1:300 overnight in 4˚C. Followed by conjugation to the secondary antibody at 1:5000 90min in 37˚C.





RSC96 cells probed with Cyclin D1 Polyclonal Antibody, Unconjugated AP50933 at 1:100 for 30 minutes followed by incubation with a conjugated secondary (PE Conjugated) (green) for 30 minutes compared to control cells (blue), secondary only (light blue) and isotype control (orange).

Citations

- Elucidating the role of the FoxO3a transcription factor in the IGF-1-induced migration and invasion of uveal melanoma cancer cells.

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