

# Cyclin D1 Rabbit pAb

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Catalog # AP50933

## Product Information

<b>Application</b>	WB, IHC-P, IHC-F, IF
<b>Primary Accession</b>	<a href="#">P24385</a>
<b>Reactivity</b>	Human, Mouse, Rat
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Calculated MW</b>	33729
<b>Physical State</b>	Liquid
<b>Immunogen</b>	KLH conjugated synthetic peptide derived from human Cyclin D1
<b>Epitope Specificity</b>	61-110/295
<b>Isotype</b>	IgG
<b>Purity</b>	affinity purified by Protein A
<b>Buffer</b>	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
<b>SUBCELLULAR LOCATION</b>	Nucleus. Cytoplasm. Membrane. Note=CyclinD-CDK4 complexes accumulate at the nuclear membrane and are then translocated to the nucleus through interaction with KIP/CIP family members.
<b>SIMILARITY</b>	Belongs to the cyclin family. Cyclin D subfamily.
<b>SUBUNIT</b>	Interacts with FBXO4. Interacts with either CDK4 or CDK6 protein kinase to form a serine/threonine kinase holoenzyme complex. The cyclin subunit imparts substrate specificity to the complex. Component of the ternary complex CCND1/CDK4/CDKN1B required for nuclear translocation and modulation of CDK4-mediated kinase activity. Interacts directly with CDKN1B. Interacts with UHRF2; the interaction ubiquitinates CCND1 and appears to occur independently of phosphorylation. Can form similar complexes with either CDKN1A or CDKN2A. Interacts with USP2. Phosphorylation at Thr-286 by MAP kinases is required for ubiquitination and degradation following DNA damage. It probably plays an essential role for recognition by the FBXO31 component of SCF (SKP1-cullin-F-box) protein ligase complex. Ubiquitinated, primarily as 'Lys-48'-linked polyubiquitination. Ubiquitinated by a SCF (SKP1-CUL1-F-box) protein ligase complex containing FBXO4 and CRYAB. 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 (By similarity). Ubiquitinated also by UHRF2 apparently in a phosphorylation-independent manner. Ubiquitination leads to its degradation and G1 arrest. Deubiquitinated by USP2; leading to its stabilization.
<b>Post-translational modifications</b>	
<b>DISEASE</b>	Note=A chromosomal aberration involving CCND1 may be a cause of B-lymphocytic malignancy, particularly mantle-cell lymphoma (MCL). Translocation t(11;14)(q13;q32) with immunoglobulin gene regions. Activation of CCND1 may be oncogenic by directly altering progression through the cell cycle. Note=A chromosomal aberration involving CCND1 may be a cause of parathyroid adenomas. Translocation t(11;11)(q13;p15) with the parathyroid hormone (PTH) enhancer. Defects in CCND1 are a cause of multiple myeloma

<b>Important Note</b>	(MM)[MIM:254500]. MM is a malignant tumor of plasma cells usually arising in the bone marrow and characterized by diffuse involvement of the skeletal system, hyperglobulinemia, Bence-Jones proteinuria and anemia. Complications of multiple myeloma are bone pain, hypercalcemia, renal failure and spinal cord compression. The aberrant antibodies that are produced lead to impaired humoral immunity and patients have a high prevalence of infection. Amyloidosis may develop in some patients. Multiple myeloma is part of a spectrum of diseases ranging from monoclonal gammopathy of unknown significance (MGUS) to plasma cell leukemia. Note= A chromosomal aberration involving CCND1 is found in multiple myeloma. Translocation t(11;14)(q13;q32) with the IgH locus. This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
<b>Background Descriptions</b>	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

<b>Gene ID</b>	595
<b>Other Names</b>	G1/S-specific cyclin-D1, B-cell lymphoma 1 protein, BCL-1, BCL-1 oncogene, PRAD1 oncogene, CCND1 {ECO:0000303   PubMed:8204893, ECO:0000312   HGNC:HGNC:1582}
<b>Dilution</b>	WB=1:500-2000, IHC-P=1:50-200, ICC/IF=1:50-200, IHC-F=1:50-200, IF=1:50-200
<b>Storage</b>	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

<b>Name</b>	CCND1 {ECO:0000303   PubMed:8204893, ECO:0000312   HGNC:HGNC:1582}
<b>Function</b>	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: <a href="#">1827756</a> , PubMed: <a href="#">1833066</a> , PubMed: <a href="#">19412162</a> , PubMed: <a href="#">33854235</a> , PubMed: <a href="#">8114739</a> , PubMed: <a href="#">8302605</a> ). 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: <a href="#">1827756</a> , PubMed: <a href="#">1833066</a> , PubMed: <a href="#">19412162</a> , PubMed: <a href="#">8114739</a> , PubMed: <a href="#">8302605</a> ). Hypophosphorylates RB1 in early G(1) phase (PubMed: <a href="#">1827756</a> , PubMed: <a href="#">1833066</a> , PubMed: <a href="#">19412162</a> , PubMed: <a href="#">8114739</a> , PubMed: <a href="#">8302605</a> ). Cyclin D-CDK4 complexes are major integrators of various mitogenic 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

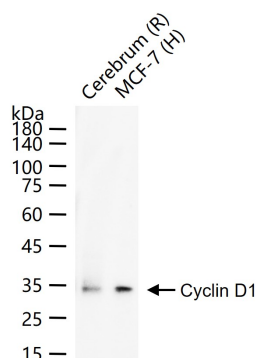
## Background

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].

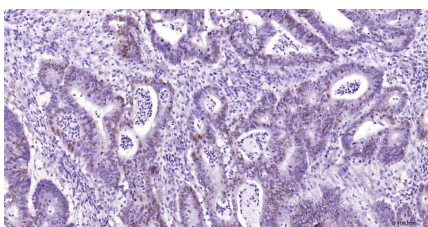
## References

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



25 ug total protein per lane of various lysates (see on figure) probed with Cyclin D1 polyclonal antibody, unconjugated (AP50933) at 1:2000 dilution and 4°C overnight incubation. Followed by conjugated secondary antibody incubation at r.t. for 60 min.



Paraformaldehyde-fixed, paraffin embedded Human Colon Cancer; Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15 min; Antibody incubation with Cyclin D1 Polyclonal Antibody, Unconjugated (AP50933) at 1:200 overnight at 4°C, followed by conjugation to the AP50933-HRP and DAB (C-0010)

staining.

## Citations

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- [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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