PRODUCT INFORMATION

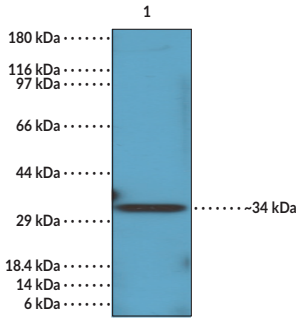
Cyclin D1 Rabbit Monoclonal Antibody (Clone RM241)

Item No. 32195

Overview and Properties

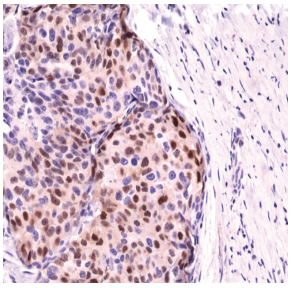
Contents:	This vial contains 100 µl of protein A-affinity purified monoclonal antibody.
Immunogen:	Peptide corresponding to cyclin D1
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
Clone:	RM241
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:500-1:1,000 for IHC and 1:1,000-1:2,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images

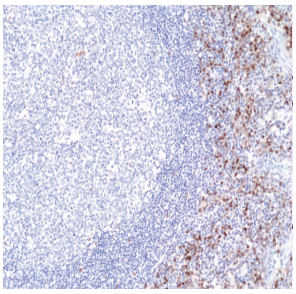


Lane 1: HeLa cell lysates

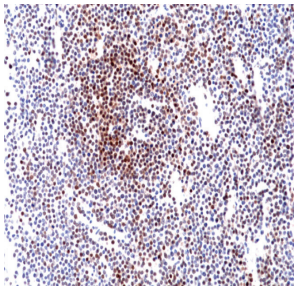
WB of HeLa cell lysates using Cyclin D1 Rabbit Monoclonal Antibody (Clone RM241) at a dilution of 1:1,000.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human breast cancer sections using Cyclin D1 Rabbit Monoclonal Antibody (Clone RM241) at a 1:1,000 dilution.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human tonsil tissue using Cyclin D1 Rabbit Monoclonal Antibody (Clone RM241) at a 1:1,000 dilution.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human mantle cell lymphoma tissue using Cyclin D1 Rabbit Monoclonal Antibody (Clone RM241) at a 1:1,000 dilution.

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Description

Cyclin D1 is a regulatory protein that controls cell proliferation by promoting cell cycle progression from G_1 to S phase.[1] It is induced during the G_1 phase following stimulation with mitogens, including growth factors, hormones, and cytokines, and heterodimerizes with cyclin-dependent kinase 4 (Cdk4) or Cdk6 in the cytoplasm.[2,3] The cyclin D1/Cdk4/6 complex translocates to the nucleus and phosphorylates retinoblastoma protein (Rb), permitting expression of E2F transcription factors, which drive S phase entry and progression.[1,3,4] During the G_1/S phase transition, cyclin D1 is phosphorylated by glycogen synthase kinase 3β (GSK3β) and exported to the cytoplasm where it is ubiquitinated and degraded. *CCND1*, the gene encoding cyclin D1, is overexpressed in a variety of human cancers, including mantle cell lymphoma, pancreatic cancer, and breast cancer, and tumor cyclin D1 levels are increased in patients with colorectal cancer and associated with decreased overall survival.[5,6] Cayman's Cyclin D1 Rabbit Monoclonal Antibody (Clone RM241) can be used for immunohistochemistry (IHC) and Western blot (WB) applications. The antibody recognizes cyclin D1 at approximately 34 kDa from human samples.

References

1. Qie, S. and Diehl, J.A. Cyclin D1, cancer progression, and opportunities in cancer treatment. *J. Mol. Med. (Berl.)* **94(12)**, 1313-1326 (2016).
2. Fu, M., Wang, C., Li, Z., *et al*. Minireview: Cyclin D1: Normal and abnormal functions. *Endocrinology* **145(12)**, 5439-5447 (2004).
3. Gladden, A.B and Diehl, J.A. Location, location, location: The role of cyclin D1 nuclear localization in cancer. *J. Cell. Biochem.* **96(5)**, 906-913 (2005).
4. Kim, J.K. and Diehl, J.A. Nuclear cyclin D1: An oncogenic driver in human cancer. *J. Cell. Physiol.* **220(2)**, 292-296 (2009).
5. Musgrove, E.A., Caldon, C.E., Barraclough, J., *et al*. Cyclin D as a therapeutic target in cancer. *Nat. Rev. Cancer* **11(8)**, 558-572 (2011).
6. McKay, J.A., Douglas, J.J., Ross, V.G., *et al*. Cyclin D1 protein expression and gene polymorphism in colorectal cancer. *Int. J. Cancer* **88(1)**, 77-91 (2000).

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