

PRODUCT INFORMATION



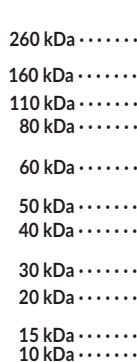
Cyclin B1 Rabbit Monoclonal Antibody (Clone RM281)

Item No. 32231

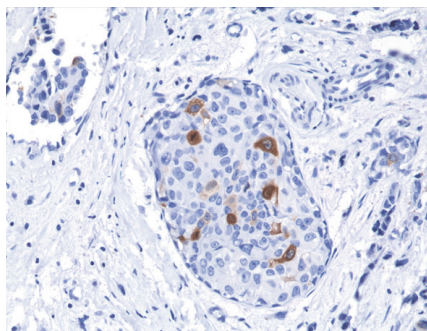
Overview and Properties

Contents:	This vial contains 100 µl of protein A-affinity purified monoclonal antibody.
Synonyms:	G ₂ /Mitotic-specific Cyclin B1
Immunogen:	Peptide corresponding to cyclin B1
Cross Reactivity:	(+) Cyclin B1
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:	RM281
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:1,000-1:2,000 for both. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

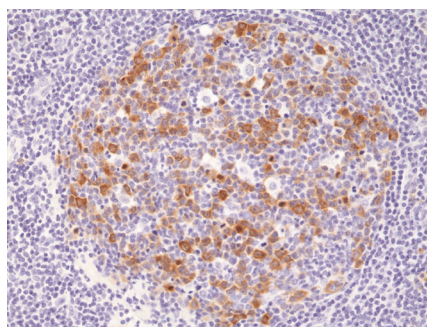
Images



WB of Jurkat cell lysates using Cyclin B1 Rabbit Monoclonal Antibody (Clone RM281) at a dilution of 1:1,000.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human breast cancer tissue using Cyclin B1 Rabbit Monoclonal Antibody (Clone RM281) at a 1:2,000 dilution.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human tonsil tissue using Cyclin B1 Rabbit Monoclonal Antibody (Clone RM281) at a 1:1,000 dilution.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Cyclin B1 is a regulatory protein responsible for the initiation of mitosis.¹ It contains an unstructured N-terminal domain that associates with mitotic chromosomes, a D-box sequence, which regulates the degradation of cyclin B1, a cytoplasmic retention sequence (CRS), and a cyclin box domain, which binds cyclin-dependent kinase 1 (Cdk1) and contains an MRAIL motif that associates with centrosomes.² Cyclin B1 forms a complex with Cdk1 and is localized primarily to the cytoplasm until cyclin B1 protein levels peak at the G₂/M transition.¹ Cyclin B1 is then phosphorylated at the CRS by Cdk1 and polo-like kinase 1 (Plk1), which triggers the translocation of the complex to the nucleus where it phosphorylates a variety of substrates to initiate mitosis. When cyclin B1 is ubiquitinated and degraded, the cell exits anaphase. *CCNB1*, the gene encoding cyclin D1, is overexpressed throughout the cell cycle in cancer cells lacking the tumor suppressor p53 and acts as a tumor antigen.^{3,4} *CCNB1* overexpression in an esophageal squamous cell carcinoma (ESCC) mouse xenograft model increases invasion and metastasis, while siRNA suppression of cyclin B1 expression inhibits metastasis to the lungs.⁵ In contrast, overexpression of *CCNB1* in patient-derived colorectal cancer tissue negatively correlates to metastasis and low expression positively correlates to poorer overall survival.⁶ Cayman's Cyclin B1 Rabbit Monoclonal Antibody (Clone RM281) can be used for immunohistochemistry (IHC) and Western blot (WB) applications.

References

1. Porter, L.A. and Donoghue, D.J. Cyclin B1 and CDK1: Nuclear localization and upstream regulators. *Prog. Cell Cycle Res.* **5**, 335-347 (2003).
2. Pfaff, K.L. and King, R.W. Determinants of human cyclin B1 association with mitotic chromosomes. *PLoS One* **8(3)**, e59169 (2013).
3. Egloff, A.M., Vella, L.A., and Finn, O.J. Cyclin B1 and other cyclins as tumor antigens in immunosurveillance and immunotherapy of cancer. *Cancer Res.* **66(1)**, 6-9 (2006).
4. Yu, M., Zhan, Q., and Finn, O.J. Immune recognition of cyclin B1 as a tumor antigen is a result of its overexpression in human tumors that is caused by non-functional p53. *Mol. Immunol.* **38(12-13)**, 981-987 (2001).
5. Song, Y., Zhao, C., Dong, L., *et al.* Overexpression of cyclin B1 in human esophageal squamous cell carcinoma cells induces tumor cell invasive growth and metastasis. *Carcinogenesis* **29(2)**, 307-315 (2008).
6. Fang, Y., Liang, X., Jiang, W., *et al.* Cyclin B1 suppresses colorectal cancer invasion and metastasis by regulating e-cadherin. *PLoS One* **10(5)**, e0126875 (2015).

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