

# PRODUCT INFORMATION



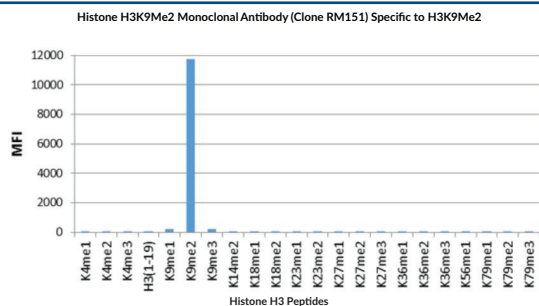
## Histone H3K9Me2 Monoclonal Antibody (Clone RM151)

Item No. 32142

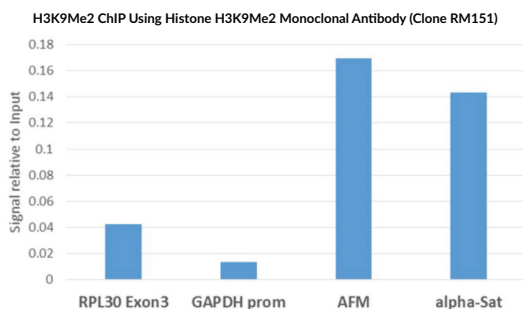
### Overview and Properties

<b>Contents:</b>	This vial contains 100 µg of protein A-affinity purified monoclonal antibody.
<b>Synonym:</b>	Dimethylated Histone H3 Lysine 9
<b>Immunogen:</b>	Peptide corresponding to H3K9Me2
<b>Cross Reactivity:</b>	(+) H3K9Me2; (-) Unmodified histone H3 (1-19), H3K9Me1, H3K9Me3, H3K4Me1, H3K4Me2, H3K4Me3, H3K14Me2, H3K18Me1, H3K18Me2, H3K23Me1, H3K23Me2, H3K27Me1, H3K27Me2, H3K27Me3, H3K36Me1, H3K36Me2, H3K36Me3, H3K56Me1, H3K79Me1, H3K79Me2, H3K79Me3
<b>Species Reactivity:</b>	(+) Vertebrates
<b>Form:</b>	Liquid
<b>Storage:</b>	-20°C (as supplied)
<b>Stability:</b>	≥1 year
<b>Storage Buffer:</b>	PBS, with 50% glycerol, 1% BSA, and 0.09% sodium azide
<b>Concentration:</b>	1.0 mg/ml
<b>Clone:</b>	RM151
<b>Host:</b>	Rabbit
<b>Isotype:</b>	IgG
<b>Applications:</b>	Chromatin immunoprecipitation (ChIP), ELISA, Immunocytochemistry (ICC), Multiplex-based assays, and Western blot (WB); the recommended starting concentration for ChIP is 2-10 µg/ml, 0.2-1 µg/ml for ELISA, 0.5-2 µg/ml for ICC, 0.1-0.5 µg/ml for multiplex-based assays, and 0.25-1 µg/ml for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

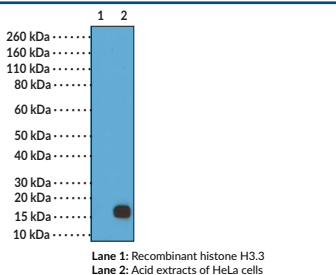
### Images



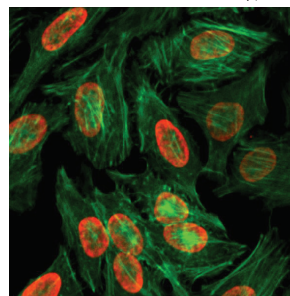
Histone H3K9Me2 Monoclonal Antibody (Clone RM151) specifically reacts to H3K9Me2. No cross reactivity with unmodified H3 (1-19), H3K9Me1, H3K9Me3, or other methylations in histone H3.



ChIP performed on HeLa cells using 5 µg of Histone H3K9Me2 Monoclonal Antibody (Clone RM151). Real time PCR was performed using primers specific to the gene indicated.



WB of recombinant histone H3.3 and acid extracts of HeLa cells using 0.5 µg/ml of Histone H3K9Me2 Monoclonal Antibody (Clone RM151).



Immunocytochemistry of HeLa cells treated with sodium butyrate using Histone H3K9Me2 Monoclonal Antibody (Clone RM151) (red). Actin filaments have been labeled with fluorescein phalloidin (green).

**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**  
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## Description

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Histone H3 is a nuclear protein and a component of the nucleosome core, a basic unit of chromatin, that is essential for organizing genomic DNA in eukaryotic nuclei.<sup>1</sup> It is a globular protein that contains an unstructured N-terminal tail that extends outside of the nucleosome core and is subject to various post-translational modifications (PTMs), including methylation, phosphorylation, acetylation, and citrullination.<sup>1,2</sup> Dimethylation of histone H3 at lysine 9 (H3K9Me2) is associated with transcriptional repression.<sup>3</sup> Heterochromatin protein 1- $\alpha$  (HP1- $\alpha$ ), HP1- $\beta$ , and HP1- $\gamma$  selectively bind histone H3 N-terminal peptides containing dimethylated lysine 9 over unmodified lysine 9.<sup>4</sup> High nuclear levels of H3K9Me2 in tumor tissue are associated with decreased disease-specific and disease-free survival in patients with oral and oropharyngeal squamous cell carcinoma.<sup>5</sup> Cayman's Histone H3K9Me2 Monoclonal Antibody (Clone RM151) can be used for chromatin immunoprecipitation (ChIP), ELISA, immunocytochemistry (ICC), multiplex-based assay, and Western blot (WB) applications.

## References

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1. Hyun, K., Jeon, J., Park, K., *et al.* Writing, erasing and reading histone lysine methylations. *Exp. Mol. Med.* **49(4)**, e324 (2017).
2. Sharda, A., Amnekar, R.V., Natu, A., *et al.* Histone posttranslational modifications: Potential role in diagnosis, prognosis, and therapeutics of cancer. *Prognostic Epigenetics*. Sharma, S., editor, *Academic Press* (2019).
3. Lienert, F., Mohn, F., Tiwari, V.K., *et al.* Genomic prevalence of heterochromatic H3K9me2 and transcription do not discriminate pluripotent from terminally differentiated cells. *PLoS Genet.* **7(6)**, e1002090 (2011).
4. Lachner, M., O'Carroll, D., Rea, S., *et al.* Methylation of histone H3 lysine 9 creates a binding site for HP1 proteins. *Nature* **410(6824)**, 116-120 (2001).
5. Maia, L.L., Peterle, G.T., Dos Santos, M., *et al.* JMJD1A, H3K9me1, H3K9me2 and ADM expression as prognostic markers in oral and oropharyngeal squamous cell carcinoma. *PLoS One* **13(3)**, e019884 (2018).

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