

# PRODUCT INFORMATION



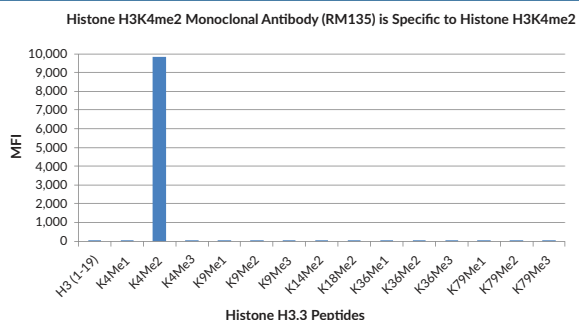
## Histone H3K4Me2 Monoclonal Antibody (RM135)

Item No. 32132

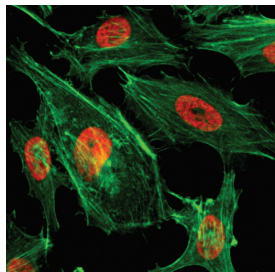
### Overview and Properties

<b>Contents:</b>	This vial contains 100 µg of protein A-affinity purified monoclonal antibody.
<b>Synonym:</b>	Dimethylated Histone H3 Lysine 4
<b>Immunogen:</b>	Peptide corresponding to H3K4Me2
<b>Cross Reactivity:</b>	(+) H3K4Me2; (-) Unmodified histone H3 (1-19), H3K4Me1, H3K4Me3, H3K9Me1, H3K9Me2, H3K9Me3, H3K14Me2, H3K18Me2, H3K36Me1, H3K36Me2, H3K36Me3, H3K79Me1, H3K79Me2
<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 mg/ml
<b>Clone:</b>	RM135
<b>Host:</b>	Rabbit
<b>Isotype:</b>	IgG
<b>Applications:</b>	Chromatin IP (ChIP), ELISA, Immunocytochemistry (ICC), Multiplex-based assays, and Western blot (WB); the recommended starting dilution is 1-5 µg for ChIP, 0.2-1 µg/ml for ELISA, 1-2 µg/ml for ICC, 0.1-0.5 µg/ml for multiplex-based assays, and 0.02-0.2 µg/ml for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

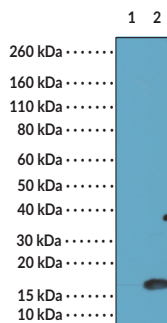
### Images



Multiplex of Histone H3K4Me2 Monoclonal Antibody (RM135). Histone H3K4Me2 Monoclonal Antibody (RM135) specifically reacts to H3K4Me2. No cross reactivity with H3K4Me1, H3K4Me3, or other methylations in histone H3.



Immunocytochemistry of HeLa cells treated with sodium butyrate, using Histone H3K4Me2 Monoclonal Antibody (RM135) (red). Actin filaments have been labeled with fluorescein phalloidin (green).



**Lane 1:** Recombinant histone H3.3  
**Lane 2:** Acid extracts of HeLa cells

WB of recombinant histone H3.3 (1) and acid extracts of HeLa cells (2), using Histone H3K4Me2 Monoclonal Antibody (RM135) at 0.025 µg/ml, showed a band of H3K4Me2 in HeLa cells.

**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 4 (H3K4Me2) is found at active and primed, but inactive, loci.<sup>3,4</sup> It is enriched in gene promoter regions and overlaps with transcription factor binding sites. Low tumor levels of H3K4Me2 positively correlate with decreased overall and disease-free survival in pancreatic cancer patients.<sup>5</sup> Cayman's Histone H3K4Me2 Monoclonal Antibody (RM135) 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. Sims, R.J., III and Reinberg, D. Histone H3 Lys 4 methylation: Caught in a bind? *Genes Dev.* **20(20)**, 2779-2786 (2006).
4. Wang, Y., Li, X., and Hu, H. H3K4me2 reliably defines transcription factor binding regions in different cells. *Genomics* **103(2-3)**, 222-228 (2014).
5. Watanabe, T., Morinaga, S., Akaike, M., *et al.* The cellular level of histone H3 lysine 4 dimethylation correlates with response to adjuvant gemcitabine in Japanese pancreatic cancer patients treated with surgery. *Eur. J. Surg. Oncol.* **38(11)**, 1051-1057 (2012).

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