

PRODUCT INFORMATION



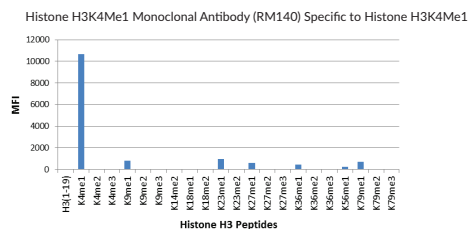
Histone H3K4Me1 Monoclonal Antibody (RM140)

Item No. 32131

Overview and Properties

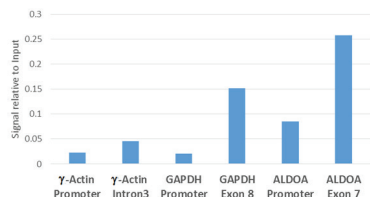
Contents: This vial contains 100 µg of protein A-affinity purified monoclonal antibody.
Synonym: Monomethylated Histone H3 Lysine 4
Immunogen: Peptide corresponding to H3K4Me1
Cross Reactivity: (+) H3K4Me1; (-) Unmodified histone H3 (1-19), H3K4Me2, H3K4Me3, H3K9Me1, H3K9Me2, H3K9Me3, H3K14Me2, H3K18Me1, H3K18Me2, H3K23Me1, H3K23Me2, H3K27Me1, H3K27Me2, H3K27Me3, H3K36Me1, H3K36Me2, H3K36Me3, H3K56Me1, H3K79Me1, H3K79Me2, H3K79Me3
Species Reactivity: (+) Vertebrates
Form: Liquid
Storage: -20°C (as supplied)
Stability: ≥1 year
Storage Buffer: PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
Concentration: 1 mg/ml
Clone: RM140
Host: Rabbit
Isotype: IgG
Applications: Chromatin immunoprecipitation (ChIP), ELISA, immunocytochemistry (ICC), multiplex-based assay, Western blot (WB); the recommended starting concentration is 0.2-1 µg/ml for ELISA and WB and 2-10, 1-2, and 0.1-0.5 µg/ml for ChIP, ICC, and multiplex-based assay, respectively. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images

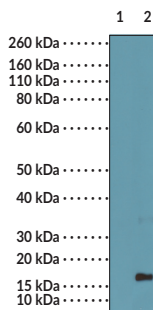


Histone H3K4Me1 Monoclonal Antibody (RM140) specifically reacts to H3K4Me1. No cross reactivity with H3K4Me2, H3K4Me3, or other methylations in histone H3.

H3K4Me1 ChIP using Histone H3K4Me1 Monoclonal Antibody (RM140)

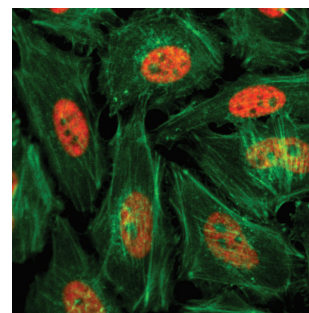


ChIP performed on HeLa cells using H3K4Me1 Antibody (RM140) (5 µg). RT-PCR was performed using primers specific to the gene indicated.



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

WB using Histone H3K4Me1 Monoclonal Antibody (RM140) showed a band of H3K4Me1 in HeLa cells.



Immunocytochemistry of HeLa cells treated with sodium butyrate, using Histone H3K4Me1 Monoclonal Antibody (RM140) (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.

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Description

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.¹ 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.^{1,2} Monomethylation of histone H3 at lysine 4 (H3K4Me1) is found at active and primed enhancer regions of gene promoters and H3K4Me1-containing nucleosomes are more efficiently remodeled by the chromatin-remodeling complex BAF than unmarked nucleosomes.^{3,4} It is also enriched at CpG sites associated with aging in stem and differentiated cells.⁵ Cayman's Histone H3K4Me1 Monoclonal Antibody (RM140) can be used for chromatin immunoprecipitation (ChIP), ELISA, immunocytochemistry (ICC), multiplex-based assay, and Western blot (WB) applications.

References

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. Gupta, J., Kumar, S., Li, J., *et al.* Histone H3 lysine 4 monomethylation (H3K4me1) and H3 lysine 9 monomethylation (H3K9me1): Distribution and their association in regulating gene expression under hyperglycaemic/hyperinsulinemic conditions in 3T3 cells. *Biochimie* **94(12)**, 2656-2664 (2012).
4. Local, A., Huang, H., Albuquerque, C.P., *et al.* Identification of H3K4me1-associated proteins at mammalian enhancers. *Nat. Genet.* **50(1)**, 73-82 (2018).
5. Fernández, A.F., Bayón, G.F., Urduñigo, R.G., *et al.* H3K4me1 marks DNA regions hypomethylated during aging in human stem and differentiated cells. *Genome Res.* **25(1)**, 27-40 (2015).

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