

PRODUCT INFORMATION



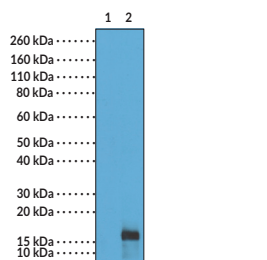
Histone H3K79Me2 Monoclonal Antibody

Item No. 32151

Overview and Properties

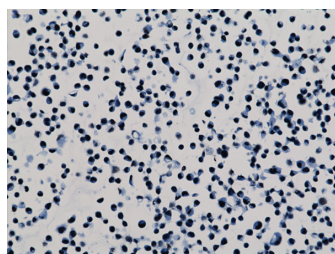
Contents:	This vial contains 100 µg of protein A-affinity purified monoclonal antibody.
Synonym:	Dimethylated Histone H3 Lysine 79
Immunogen:	Peptide corresponding to H3K79Me2
Cross Reactivity:	(+) H3K79Me2; (-) Unmodified H3K79, H3K79Me1, H3K79Me3, H3K4Me1, H3K4Me2, H3K4Me3, H3K9Me1, H3K9Me2, H3K9Me3, H3K14Me2, H3K18Me1, H3K18Me2, H3K23Me1, H3K23Me2, H3K27Me1, H3K27Me2, H3K27Me3, H3K36Me1, H3K36Me2, H3K36Me3, H3K56Me1
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:	1.0 mg/ml
Clone:	RM181
Host:	Rabbit
Isotype:	IgG
Applications:	Chromatin immunoprecipitation (ChIP), ELISA, immunohistochemistry (IHC), multiplex-based assays, and Western blot (WB); the recommended starting concentration is 2-10, 0.2-1, 0.1-1, 0.1-0.5, and 0.25-1 µg/ml, respectively. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images

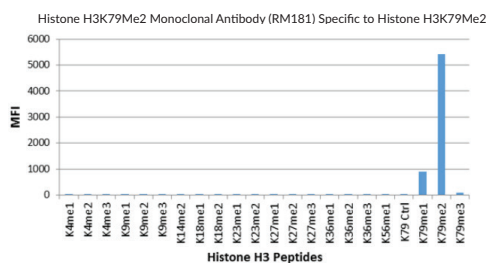


Lane 1: Recombinant histone H3.3
Lane 2: Acid extracts of HeLa cells

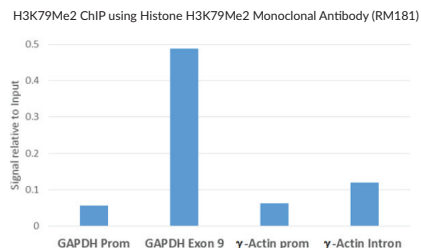
WB of recombinant histone H3.3 protein and acid extracts of HeLa cells using Histone H3K79Me2 Monoclonal Antibody (RM181) at a concentration of 0.25 µg/ml showed a band of H3K79me2 in HeLa cells.



Immunohistochemical staining of HepG2 cells using Histone H3K79Me2 Monoclonal Antibody (RM181).



Histone H3K79Me2 Monoclonal Antibody (RM181) specifically reacts to H3K79Me2. Very slightly cross reactivity with H3K14Me1, and no cross reactivity with unmodified H3K79, H3K79Me3, or other methylations in histone H3.



ChIP performed on HeLa cells using Histone H3K79Me2 Monoclonal Antibody (RM181) (5 µg). Real-time PCR was performed using primers specific to the gene indicated.

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} Dimethylation of histone H3 at lysine 79 (H3K79Me2) is a cell cycle-dependent modification associated with gene repression that is low during G₁ and early S phases, increases during late S phase, and is maintained during G₂/M.³ Levels of H3K79Me2 are increased during mitosis in a histone H2B monoubiquitination-dependent manner, and loss of H3K79Me2 is associated with increased chromosome numbers and mitotic defects in HCT116 cells.⁴ H3K79Me2 is completely absent in postmortem brain tissue isolated from fetuses with spina bifida.⁵ Cayman's Histone H3K79Me2 Monoclonal Antibody (RM181) can be used for chromatin immunoprecipitation (ChIP), ELISA, immunohistochemistry (IHC), 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. Mellor, J. Linking the cell cycle to histone modifications: Dot1, G1/S, and cycling K79me2. *Mol. Cell.* **35(6)**, 729-730 (2009).
4. Guppy, B.J. and McManus, K.J. Mitotic accumulation of dimethylated lysine 79 of histone H3 is important for maintaining genome integrity during mitosis in human cells. *Genetics* **199(2)**, 423-433 (2015).
5. Zhang, Q., Xue, P., Li, P., *et al.* Histone modification mapping in human brain reveals aberrant expression of histone H3 lysine 79 dimethylation in neural tube defects. *Neurobiol. Dis.* **54**, 404-413 (2013).

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