PRODUCT INFORMATION

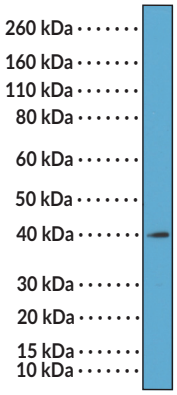
Histone MacroH2A1/MacroH2A2 (C-Term) Monoclonal Antibody (Clone RM248)

Item No. 32176

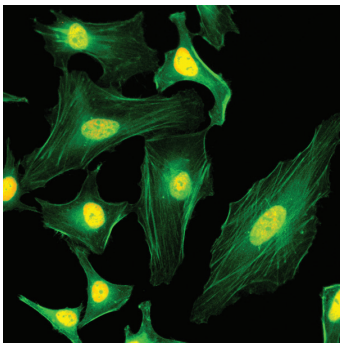
Overview and Properties

Contents:	This vial contains 100 µg of protein A-affinity purified monoclonal antibody.
Immunogen:	Peptide from the C-terminal region of human macroH2A1
Cross Reactivity:	(+) MacroH2A1 and MacroH2A2, independent of PTMs; (-) Other histones
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:	RM248
Host:	Rabbit
Isotype:	IgG
Applications:	ELISA, Immunocytochemistry (ICC), Multiplex-based assays, and Western blot (WB); the recommended starting concentration is 0.2-1 µg/ml for ELISA and multiplex-based assays, 1-2 µg/ml for ICC, and 0.5-2 µg/ml for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



WB of acid extracts from K562 cells using Histone MacroH2A1/MacroH2A2 (C-Term) Monoclonal Antibody (Clone RM248) at a concentration of 1 µg/ml.



Immunofluorescent labeling of HeLa cells using Histone MacroH2A1/MacroH2A2 (C-Term) Monoclonal Antibody (Clone RM248) (red). Actin filaments have been labeled with fluorescein phalloidin (green).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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Description

MacroH2A proteins are variant histones that are enriched on inactivated X chromosomes and have roles in the maintenance of nuclear organization and heterochromatin architecture.[1-3] MacroH2A1 is encoded by *MACROH2A1* and can exist as two isoforms, macroH2A1.1 and macroH2A1.2, produced by alternative splicing, and macroH2A2 is encoded by *MACROH2A2*.[2] MacroH2As are comprised of a histone fold, which is approximately 65% identical to canonical histone H2A, a basic linker, and a C-terminal non-histone macrodomain, which is unique to macroH2As and protrudes from the nucleosome core to recruit various co-factors.[1-3] The non-histone region of macroH2A2 is 68% identical to that of macroH2A1.2, whereas the macrodomain of macroH2A1.1 is unique in that it can bind to ADP-ribose and ADP-ribosylated proteins.[2,3] Low levels of macroH2A1.1 are associated with poor prognosis in patients with lung or colon cancer, and loss of macroH2A2 expression is associated with earlier recurrence of lesions in patients with anal intraepithelial neoplasia (AIN).[3,4] MacroH2A1.2 expression is increased in highly proliferative cancer cell lines, but it can act as a tumor suppressor in melanoma and bladder cancer, indicating that its role in cancer is context-dependent. Cayman's Histone MacroH2A1/MacroH2A2 (C-Term) Monoclonal Antibody (Clone RM248) can be used for ELISA, immunocytochemistry (ICC), multiplex-based assay, and Western blot (WB) applications. The antibody recognizes the C-terminus of macroH2A1 and macroH2A2 independent of post-translational modifications (PTMs).

References

1. Ruiz, P.D. and Gamble, M.J. MacroH2A1 chromatin specification requires its docking domain and acetylation of H2B lysine 20. *Nat. Commun.* **9(1)**, 5143 (2018).
2. Costanzi, C. and Pehrson, J.R. MACROH2A2, a new member of the MARCOH2A core histone family. *J. Biol. Chem.* **276(24)**, 21776-21784 (2001).
3. Corujo, D. and Buschbeck, M. Post-translational modifications of H2A histone variants and their role in cancer. *Cancers (Basel)* **10(3)**, 59 (2018).
4. Giallongo, S., Lo Re, O., and Vinciguerra, M. Macro histone variants: Emerging rheostats of gastrointestinal cancers. *Cancers (Basel)* **11(5)**, 676 (2019).

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