

# PRMT4/CARM1 (3H2) Mouse mAb

✓ 100 µl  
(10 western blots)



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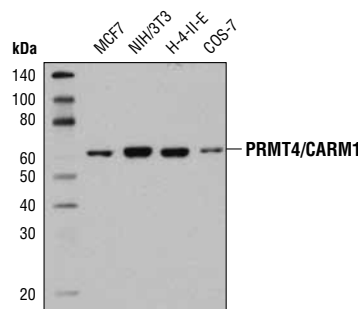
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Applications W, IP, IF-IC, ChIP Endogenous	Species Cross-Reactivity* H, M, R, Mk	Molecular Wt. 63 kDa	Isotype Mouse IgG**
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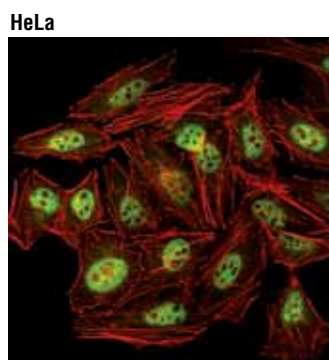
**Background:** Protein arginine N-methyltransferase 1 (PRMT1) is a member of the protein arginine N-methyltransferase (PRMT) family of proteins that catalyze the transfer of a methyl group from S-adenosylmethionine (AdoMet) to a guanidine nitrogen of arginine (1). Though all PRMT proteins catalyze the formation of mono-methyl arginine, Type I PRMTs (PRMT1, 3, 4, and 6) add an additional methyl group to produce an asymmetric di-methyl arginine while Type II PRMTs (PRMT 5 and 7) produce symmetric di-methyl arginine (1). Mono-methyl arginine, but not di-methyl arginine, can be converted to citrulline through deimination catalyzed by enzymes such as PAD14 (2). Most PRMTs, including PRMT1, methylate arginine residues found within glycine-arginine rich (GAR) protein domains, such as RGG, RG, and RXR repeats (1). However, PRMT4/CARM1 and PRMT5 methylate arginine residues within PGM (proline-, glycine-, methionine-rich) motifs (3). PRMT1 methylates Arg3 of histone H4 and cooperates synergistically with p300/CBP to enhance transcriptional activation by nuclear receptor proteins (4-6). In addition, PRMT1 methylates many non-histone proteins, including the orphan nuclear receptor HNF4 (6), components of the heterogeneous nuclear ribonucleoprotein (hnRNP) particle (7), the RNA binding protein Sam68 (8), interleukin enhancer-binding factor 3 (ILF3) (9) and interferon- $\alpha$  and  $\beta$  receptors (10). These interactions suggest additional functions in transcriptional regulation, mRNA processing and signal transduction. Alternative mRNA splicing produces three enzymatically active PRMT1 isoforms that differ in their amino-terminal regions (11). PRMT1 is localized to the nucleus or cytoplasm, depending on cell type, (12,13) and appears in many distinct protein complexes. ILF3, TIS21 and the leukemia-associated BTG1 proteins bind PRMT1 to regulate its methyltransferase activity (9,14).

**Specificity/Sensitivity:** PRMT4/CARM1 (3H2) Mouse mAb recognizes endogenous levels of total PRMT4/CARM1 protein.

**Source/Purification:** Monoclonal antibody is produced by immunizing animals with recombinant protein specific to the human CARM1 protein.



Western blot analysis of extracts from various cell lines using PRMT4/CARM1 (3H2) Mouse mAb.



Confocal immunofluorescent analysis of HeLa cells using PRMT4/CARM1 (3H2) Mouse mAb (green). Actin filaments were labeled with DyLight™ 554 Phalloidin #13054 (red).

Entrez-Gene ID #10498  
UniProt ID #QB6X55

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

**\*Species cross-reactivity is determined by western blot.**

**\*\*Anti-mouse secondary antibodies must be used to detect this antibody.**

## Recommended Antibody Dilutions:

Western blotting	1:1000
Immunoprecipitation	1:100
Immunofluorescence (IF-IC)	1:100
Chromatin IP	1:50

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**Please visit [www.cellsignaling.com](http://www.cellsignaling.com) for a complete listing of recommended companion products.**

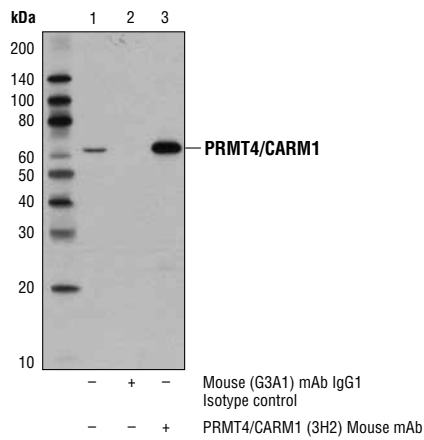
## Background References:

- (1) Bedford, M.T. and Richard, S. (2005) *Mol. Cell* 18, 263-272.
- (2) Wang, Y. et al. (2004) *Science* 306, 279-283.
- (3) Cheng, D. et al. (2007) *Mol. Cell* 25, 71-83.
- (4) Wang, H. et al. (2001) *Science* 293, 853-857.
- (5) Strahl, B.D. et al. (2001) *Curr. Biol.* 11, 996-1000.
- (6) Barrero, M.J. and Malik, S. (2006) *Mol. Cell* 24, 233-243.
- (7) Nichols, R.C. et al. (2000) *Exp. Cell Res.* 256, 522-532.
- (8) Côté, J. et al. (2003) *Mol. Biol. Cell* 14, 274-287.
- (9) Tang, J. et al. (2000) *J. Biol. Chem.* 275, 19866-19876.
- (10) Abramovich, C. et al. (1997) *EMBO J.* 16, 260-266.
- (11) Scorilas, A. et al. (2000) *Biochem. Biophys. Res. Commun.* 278, 349-359.
- (12) Frankel, A. et al. (2002) *J. Biol. Chem.* 277, 3537-3543.
- (13) Herrmann, F. et al. (2005) *J. Biol. Chem.* 280, 38005-38010.
- (14) Lin, W.J. et al. (1996) *J. Biol. Chem.* 271, 15034-15044.

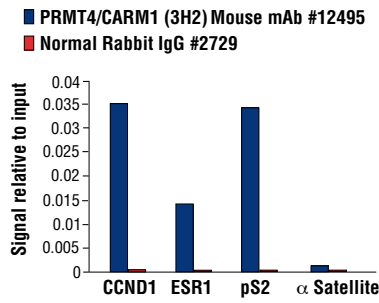
**IMPORTANT:** For western blots, incubate membrane with diluted antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween®20 at 4°C with gentle shaking, overnight.

**Applications Key:** W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide  
**Species Cross-Reactivity Key:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine  
Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.

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Immunoprecipitation of PRMT4/CARM1 from HCT 116 cell extracts using Mouse (G3A1) mAb IgG1 Isotype control #5415 (lane 2) or PRMT4/CARM1 (3H2) Mouse mAb (lane 3). Lane 1 is 10% input. Western blot analysis was performed using PRMT4/CARM1 (C31G9) Rabbit mAb #3379.



Chromatin immunoprecipitations were performed with cross-linked chromatin from  $4 \times 10^6$  MCF7 cells grown in phenol red free medium and 5% charcoal stripped FBS for 4 d then treated with  $\beta$ -estradiol (10 nM) for 45 minutes and either 10  $\mu$ l of PRMT4/CARM1 (3H2) or 2  $\mu$ l of Normal Rabbit IgG #2729 using SimpleChIP<sup>®</sup> Enzymatic Chromatin IP Kit (Magnetic Beads) #9003. The enriched DNA was quantified by real-time PCR using SimpleChIP<sup>®</sup> Human CCND1 Promoter Primers #12531, SimpleChIP<sup>®</sup> Human ESR1 Promoter Primers #9673, SimpleChIP<sup>®</sup> Human pS2 Promoter Primers #9702, and SimpleChIP<sup>®</sup> Human  $\alpha$  Satellite Repeat Primers #4486. The amount of immunoprecipitated DNA in each sample is represented as signal relative to the total amount of input chromatin, which is equivalent to one.