Revision 1

#13939 Store at -20C

Symmetric Di-Methyl Histone H3 (Arg8) (E1W5H) Rabbit mAb

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB	H M R Mk	Endogenous	17	Rabbit IgG	#P68431	8350

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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.

Specificity / Sensitivity

Symmetric Di-Methyl Histone H3 (Arg8) (E1W5H) Rabbit mAb recognizes endogenous levels of histone H3 protein only when symmetrically di-methylated at Arg8. This antibody may have a slight cross reactivity towards histone H3 protein when mono-methylated at Arg8.

Species predicted to react based on 100% sequence homology:

Zebrafish, Bovine, S. cerevisiae

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of human histone H3 in which Arg8 is symmetrically di-methylated.

Background

The nucleosome is the primary chromatin building block and consists of DNA wrapped around an octamer made of paired histone proteins H2A, H2B, H3, and H4. Chromatin remodeling plays a critical role in the regulation of various nuclear activities, including transcription. Histone proteins are targets of post-translational modification, including acetylation, phosphorylation, ubiquitination, and methylation. Modified histone residues are recognized and bound by chromatin modifiers and the transcription machinery to regulate gene expression (1-4). Protein arginine methyltransferases (PRMTs) methylate histone proteins at arginine residues to generate mono-methylated, symmetrically di-methylated, or asymmetrically di-methylated proteins. Asymmetrically di-methylated arginine residues are found on histone H3 (Arg2, 8, 17, 26, and 42), histone H4 (Arg3), and histone H2A (Arg3) proteins. Asymmetric methylation is carried out by type 1 PRMTs, which include PRMT1, PRMT2, PRMT4/CARM1, and PRMT6. These modifications are often associated with actively transcribed genes. Symmetric di-methylation of arginine residues are found on histone H3 (Arg2 and 8), histones H4 (Arg3), and H2A (Arg3). Symmetrically di-methylated histone arginine residues are generated by type II transferases PRMT5 and PRMT7, and are often associated with transcription repression (5-9). Arginine residues can also be deiminated by a peptidyl arginine deiminase (PADI) to form the non-coded amino acid citrulline. Conversion of arginine to citrulline prevents methylation of this residue and is thought to regulate histone arginine methylation levels (10-13).

Background References

1. Swygert, S.G. and Peterson, C.L. (2014) *Biochim Biophys Acta*, 728-36.
2. Zentner, G.E. and Henikoff, S. (2013) *Nat Struct Mol Biol* 20, 259-66.
3. Rothbart, S.B. and Strahl, B.D. (2014) *Biochim Biophys Acta*, 627-43.
4. Gayatri, S. and Bedford, M.T. (2014) *Biochim Biophys Acta*, 702-10.
5. Wysocka, J. et al. (2006) *Front Biosci* 11, 344-55.
6. Di Lorenzo, A. and Bedford, M.T. (2011) *FEBS Lett* 585, 2024-31.
7. Yang, Y. and Bedford, M.T. (2013) *Nat Rev Cancer* 13, 37-50.
8. Molina-Serrano, D. et al. (2013) *Biochem Soc Trans* 41, 751-9.
9. Casadio, F. et al. (2013) *Proc Natl Acad Sci USA* 110, 14894-9.
10. Wang, Y. et al. (2004) *Science* 306, 279-83.
11. Cuthbert, G.L. et al. (2004) *Cell* 118, 545-53.
12. Zhang, X. et al. (2012) *Proc Natl Acad Sci USA* 109, 13331-6.
13. Christophorou, M.A. et al. (2014) *Nature* 507, 104-8.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

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

Applications Key

WB: Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **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 **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

Trademarks and Patents

Limited Uses