

**G9a/EHMT2 (C6H3) Rabbit mAb**

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

| Applications:  | Reactivity: | Sensitivity: | MW (kDa): | Source/Isotype: | UniProt ID: | Entrez-Gene Id: |
|----------------|-------------|--------------|-----------|-----------------|-------------|-----------------|
| W, IF-IC, ChIP | H M R Mk    | Endogenous   | 160,180   | Rabbit IgG      | #Q96KQ7     | 10919           |

**Product Usage Information**

For optimal ChIP results, use 10  $\mu$ l of antibody and 10  $\mu$ g of chromatin (approximately 4 x 10<sup>6</sup> cells) per IP. This antibody has been validated using SimpleChIP<sup>®</sup> Enzymatic Chromatin IP Kits.

| Application                              | Dilution |
|--|----------|
| Western Blotting                         | 1:1000   |
| Immunofluorescence (Immunocytochemistry) | 1:50     |
| Chromatin IP                             | 1:100    |

**Storage**

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

**Specificity/Sensitivity**

G9a/EHMT2 (C6H3) Rabbit mAb detects endogenous levels of total G9a/EHMT2 protein (both the 165 kDa G9a-L and 140 kDa G9a-S isoforms). This antibody does not cross-react with other histone methyltransferases, including GLP.

**Species predicted to react based on 100% sequence homology**

Bovine, Pig, Horse

**Source / Purification**

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to the carboxy terminus of the human G9a/EHMT2 protein.

**Background**

G9a, also known as Euchromatic histone-lysine N-methyltransferase 2 (EHMT2), is a member of a family of histone lysine methyltransferases, each of which contains a conserved catalytic SET domain originally identified in *Drosophila* Su[var]3-9, Enhancer of zeste, and Trithorax proteins (1). Recombinant G9a can mono-, di- and tri-methylate histone H3 on Lys9 and Lys27 *in vitro* (1,2). However, *in vivo* G9a forms a complex with GLP, a G9a-related histone methyltransferase, and together these proteins function as the major euchromatic histone H3 Lys9 mono- and di-methyltransferases, creating transcriptionally repressive marks that facilitate gene silencing (3,4). G9a methylates itself on Lys165, a modification that regulates the association of HP1 repressor proteins with the G9a/GLP complex (5). The G9a/GLP complex also contains Wiz, a zinc finger protein that is required for G9a/GLP hetero-dimerization and complex stability (6). Wiz contains two CtBP co-repressor binding sites, which mediate the association of the G9a/GLP with the CtBP co-repressor complex (6). In addition, G9a and GLP are components of other large transcriptional co-repressor complexes, such as those involving E2F6 and CDP/cut (7-9). G9a interacts with DNMT1, and both proteins are required for methylation of DNA and histone H3 (Lys9) at replication foci, providing a functional link between histone H3 Lys9 and CpG methylation during DNA replication (10). G9a activity is critical for meiotic prophase progression, as mutant mice deficient in germ line G9a show a large loss of mature gametes (11). In addition, G9a facilitates increased global levels of di-methyl histone H3 (Lys9) during hypoxic stress and increased G9a expression is associated with hepatocellular carcinoma (12,13).

**Background References**

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3. Tachibana, M. et al. (2002) *Genes Dev* 16, 1779-91.
4. Tachibana, M. et al. (2005) *Genes Dev* 19, 815-26.
5. Sampath, S.C. et al. (2007) *Mol Cell* 27, 596-608.
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8. Shi, Y. et al. (2003) *Nature* 422, 735-8.
9. Nishio, H. and Walsh, M.J. (2004) *Proc Natl Acad Sci USA* 101, 11257-62.
10. Estève, P.O. et al. (2006) *Genes Dev* 20, 3089-103.
11. Tachibana, M. et al. (2007) *EMBO J* 26, 3346-59.
12. Kondo, Y. et al. (2007) *Hepatology* 45, 974-83.

**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**

**W:** Western Blotting **IF-IC:** Immunofluorescence (Immunocytochemistry) **ChIP:** Chromatin IP

**Cross-Reactivity Key**

**H:** Human **M:** Mouse **R:** Rat **Mk:** Monkey

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