

G9a/EHMT2 (D5R4R) XP[®] Rabbit mAb

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

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

For optimal ChIP results, use 10 µl of antibody and 10 µg of chromatin (approximately 4 x 10⁶ cells) per IP. This antibody has been validated using SimpleChIP[®] Enzymatic Chromatin IP Kits.

The CUT&RUN dilution was determined using CUT&RUN Assay Kit #86652.

| Application | Dilution |
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| Western Blotting | 1:1000 |
| Immunoprecipitation | 1:100 |
| Immunofluorescence (Immunocytochemistry) | 1:3200 |
| Chromatin IP | 1:50 |
| CUT&RUN | 1:50 |

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

G9a/EHMT2 (D5R4R) XP[®] Rabbit mAb recognizes endogenous levels of total G9a protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with recombinant protein specific to the amino terminus of human G9a 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 heterodimerization 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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12. Kondo, Y. et al. (2007) *Hepatology* 45, 974-83.

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| 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 nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight. |
| Applications Key | W: Western Blotting IP: Immunoprecipitation IF-IC: Immunofluorescence (Immunocytochemistry) ChIP: Chromatin IP C&R: CUT&RUN |
| Cross-Reactivity Key | H: Human M: Mouse R: Rat Mk: Monkey |
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