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Product Information

Anti-dimethyl-Histone H3 [diMe-Lys^{9}]
produced in rabbit, IgG fraction of antiserum

Catalog Number **D5567**

Product Description

Anti-dimethyl-Histone H3 [diMe-Lys^{9}] is produced in rabbit using as immunogen a synthetic methylated peptide corresponding to amino acids 5-13 [diMe-Lys^{9}] of human histone H3, conjugated to KLH. This sequence is identical in many species including mouse, rat, bovine, chicken, frog, *Drosophila*, *C. elegans*, tetrahymena, and *Arabidopsis thaliana* histone H3. Whole antiserum is purified to provide an IgG fraction of antiserum .

Anti-dimethyl-Histone H3 [diMe-Lys^{9}] recognizes human histone H3 dimethylated on Lys^{9}. Applications include the detection of [diMe-Lys^{9}] histone H3 by immunoblotting (17 kDa). Staining of the [diMe-Lys^{9}] histone H3 band in immunoblotting is specifically inhibited with the immunizing dimethylated histone H3 peptide (human, amino acids 5-13 [diMe-Lys^{9}]). No inhibition or partial inhibition with the mono-methylated histone H3 peptide (human, amino acids 5-13 [Me-Lys^{9}]), and with the non-methylated histone H3 peptide (human, amino acids 5-13), respectively.

This antibody is ChIP validated

The relatively unstructured and highly charged N-terminal tail domains of histones are central to the processes that modulate chromatin structure. A diverse and elaborate array of post-translational modifications, including acetylation, phosphorylation, and methylation, occur on the N-terminal tail domains of histones, particularly of H3 and H4.[1, 2] These modifications may alter chromatin structure and recruit downstream chromatin-associated proteins involved in transcription regulation. These in turn, may dictate dynamic transitions between transcriptionally active or silent chromatin states. Histones H3 and H4 are the predominant histones modified by methylation and are highly methylated in mammalian cells.[3, 4] Histone methylation, like acetylation, is a complex, dynamic process involved in a number of processes, including transcriptional regulation, chromatin condensation, mitosis and heterochromatin assembly. Moreover, lysine residues can be mono-, di-, and tri-methylated at different heterochromatic subdomains, adding further complexity to the regulation of chromatin structure.

Conserved lysine residues in the N-terminal tail domains of histone H3, Lys^{4}, Lys^{9} and Lys^{27} are the preferred sites of methylation.[1, 4-6] Histone H3 mono-, di- and trimethylation at Lys^{4} and Lys^{9} are carried out both *in vitro* and *in vivo* by SET domain-, site-specific histone methyltransferases (HMTases), including Suv39h1, Suv39h2 and G9a.[7, 8] Di- and trimethylation of histone H3 at Lys^{4} correlates with transcriptional activity of many genes.[9,10] Mono- and dimethylation of H3 at Lys^{9} are intrinsically linked to epigenetic silencing and heterochromatin assembly. In contrast, trimethylated H3 at Lys^{9} is enriched at the pericentric heterochromatin domain. Methylation of H3 at Lys^{9} generates a binding site for HP1 proteins, a family of heterochromatic adaptor proteins implicated in both gene silencing and in the organization of higher order chromatin.[11-14]

Reagent

Solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at -20 °C. For continuous use, the product may be stored at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in frost-free freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody dilution of 1:1,000-1:2,000 is recommended using a whole extract of human epitheloid carcinoma HeLa cell line.

ChIP validated

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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