

Product Information

Anti-dimethyl-Histone H3 [diMe-Lys⁹]

Developed in Rabbit
IgG Fraction of Antiserum

Product Number **D 5567**

Product Description

Anti-dimethyl-Histone H3 [diMe-Lys⁹] is developed in rabbit using as immunogen a synthetic methylated peptide corresponding to amino acids 5-13 [diMe-Lys⁹] 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 fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-dimethyl-Histone H3 [diMe-Lys⁹] recognizes histone H3 dimethylated on Lys⁹. Applications include the detection of [diMe-Lys⁹] histone H3 by immunoblotting (17 kDa). Staining of the [diMe-Lys⁹] histone H3 band in immunoblotting is specifically inhibited with the immunizing dimethylated histone H3 peptide (human, amino acids 5-13 [diMe-Lys⁹]). No inhibition or partial inhibition with the mono-methylated histone H3 peptide (human, amino acids 5-13 [Me-Lys⁹]), and with the non-methylated histone H3 peptide (human, amino acids 5-13), respectively.

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 lysines residues in the N-terminal tail domains of histone H3, Lys⁴, Lys⁹ and Lys²⁷ are the preferred sites of methylation.^{1,4-6} Histone H3 mono-, di- and trimethylation at Lys⁴ and Lys⁹ 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 Lys⁴ correlates with transcriptional activity of many genes.^{9,10} Mono- and dimethylation of H3 at Lys⁹ are intrinsically linked to epigenetic silencing and heterochromatin assembly. In contrast, trimethylated H3 at Lys⁹ is enriched at the pericentric heterochromatin domain. Methylation of H3 at Lys⁹ 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

Anti-dimethyl-Histone H3 [diMe-Lys⁹] is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also 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

By 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.

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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