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Product Information

Anti-Dimethyl-Histone H3 (diMe-Lys27) antibody, Rat monoclonal
clone K27 8H2, purified from hybridoma cell culture

Product Number **SAB4200045**

Product Description

Anti-dimethyl-Histone H3 (diMe-Lys^{27}) (rat IgG2a isotype) is derived from the hybridoma K27 8H2 produced by the fusion of mouse myeloma cells (P3X63Ag8.653) and splenocytes from rat immunized with a synthetic methylated peptide corresponding to a fragment [diMe-Lys^{27}] of human histone H3. The corresponding sequence is identical in many species including mouse, rat, hamster, bovine, chicken, frog, *Drosophila*, *C. elegans*, tetrahymena, and *Arabidopsis thaliana*. The antibody is purified from culture supernatant of hybridoma cells grown in a bioreactor.

Anti- dimethyl-Histone H3 (diMe-Lys^{27}) specifically recognizes histone H3 dimethylated on Lys^{27} in human, bovine, mouse, rat, hamster, and *Drosophila*.[1] This antibody recognizes the immunizing dimethylated histone H3 peptide [diMe-Lys^{27}]) and does not recognize the corresponding non-methylated histone H3 peptides, nor the Lys^{27} trimethylated histone H3 [triMe-Lys^{27}] or Lys^{9} [triMe-Lys^{9}] histone H3. Furthermore, it does not recognize other dimethylated H3 lysines like Lys^{4} [diMe-Lys^{4}] or Lys^{9} [diMe-Lys^{9}] histone H3. The product may be used in several immunochemical techniques including immunoblotting (~15 kDa) and immunocytochemistry.[1]

The relatively unstructured and highly charged N-terminal tail domains of histones are central to the processes that modulate chromatin structures such as acetylation, phosphorylation, and methylation, which occur particularly on Histones H3 and H4.[2,3] 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.[4,5] 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 trimethylated at different heterochromatic subdomains, adding further complexity to the regulation of chromatin structure. Conserved lysine residues in the N-terminal tail domain of histone H3, Lys^{4}, Lys^{9}, and Lys^{27} are the preferred methylation sites.[2,5-7] Specifically, the methylation of histone H3 on Lys^{27} is associated with gene silencing in several systems; mammals show an enrichment of [Me-Lys^{27}] histone H3 at heterochromatin and [diMe-Lys^{27}] histone H3 in euchromatin. [Me-Lys^{27}] histone H3, also marks the inactive X chromosome.[8-9]

Reagent

Supplied as a solution in 0.01M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody concentration: ~1.0 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the 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 at –20 °C 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 dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 0.25-0.5 μg/mL is recommended using HeLa cell extracts.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

Sensitive film is recommend using this product.

References

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RC,VS,GG,TD,KAA,PHC,MAM 04/21-1