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Product Information

Anti-acetyl-Histone H3 [Ac-Lys^9]
produced in rabbit, affinity isolated antibody

Catalog Number **H9286**

Product Description

Anti-acetyl-Histone H3 [Ac-Lys^9] is produced in rabbit using a synthetic acetylated [Ac-Lys^9] histone H3 peptide (amino acids 7-20) corresponding to the N-terminus of human histone H3 conjugated to KLH as immunogen. This histone H3 sequence is identical in many species including mouse, rat, bovine, chicken, frog, drosophila, and *C. elegans*, and is highly conserved (single amino acid substitution) in *Tetrahymena* histone H3. Anti-acetyl-Histone H3 [Ac-Lys^9] is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-acetyl-Histone H3 [Ac-Lys^9] recognizes histone H3 acetylated on Lys^9. Applications include the detection of [Ac-Lys^9] histone H3 by immunoblotting (17 kDa) and by indirect immunofluorescence. Staining of [Ac-Lys^9] histone H3 in immunoblotting is specifically inhibited with the immunizing peptide. There is no inhibition with the non-acetylated histone H3 peptide.

Histone proteins H3, H4, H2A, and H2B function as building blocks to package eukaryotic DNA into repeating nucleosome units that are folded in higher-order chromatin fibers.[1,2] The nucleosome is composed of an octamer containing a H3/H4 tetramer and two H2A/H2B dimers, surrounded by ~146 base pairs of DNA.

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, methylation, ubiquitination, and ADP-ribosylation occurs on the N-terminal tail domains of histones.[3,4] In addition, ATP-driven remodeling complexes, such as SWI/SNF, alter chromatin conformation.[5,6] These modifications alter chromatin structure by influencing histone-DNA and histone-histone interactions, and provide an exposed surface for the potential interaction of the tail domain with other proteins involved in transcription regulation.

Acetylation of lysine residues within these N-terminal domains by histone acetyl-transferases (HATs), including Gcn5p, P/CAF, p300/CBP, and $TAF_{II}250$, is associated with transcriptional activation.[2,7] This modification results in remodeling of the nucleosome structure into an open conformation more accessible to transcription complexes. Conversely, histone de-acetylation by histone deacetylases (HDACs) is associated with transcription repression reversing the chromatin remodeling process. In most species, histone H3 is primarily acetylated at lysine 9, 14, 18, and 23.[3,8-11] Acetylation at lysine 9 appears to have a dominant role in histone deposition and chromatin assembly in some organisms.[8,12,13] Acetylation of specific lysine residues in H3 is also associated with processes apart from transcription. During DNA replication, new histones are rapidly synthesized and assembled onto replicated DNA. Histones H3 and H4 are brought to replicating chromatin in a pre-acetylated state that turns into a de-acetylated state after replication is completed and the newly assembled chromatin matures.

Reagent

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

Antibody concentration: 2-2.5 mg/ml

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

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots at –20 °C. 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 minimum working dilution of 1:1,000 is determined using a using a whole cell extract of the mouse fibroblast NIH3T3 cell line treated with sodium butyrate.

Indirect immunofluorescence: a minimum working dilution of 1:1,000 is determined by using the NIH3T3 mouse fibroblast cell line treated with sodium butyrate.

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

References

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DS,KAA,PHC 01/12-1

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