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Product Information

Anti-Acetyl Histone H3 (Ac-Lys^{9}) antibody, Mouse monoclonal
clone AH3-120, purified from hybridoma cell culture

Product Number **H0913**

Product Description

Anti-Acetyl Histone H3 (Ac-Lys^{9}) antibody, Mouse monoclonal (mouse IgG1 isotype) is derived from the AH3-120 hybridoma produced by the fusion of mouse myeloma cells (NS1) and splenocytes from BALB/c mice immunized with a synthetic, acetylated histone H3 peptide (amino acids 7-20, Ac-Lys^{9}) corresponding to the N-terminus of human histone H3, conjugated to KLH. 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. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2.

Monoclonal Anti-Acetyl-Histone H3 (Ac-Lys^{9}) recognizes human histone H3 when acetylated on Lys^{9}. The antibody may be used in various applications including ELISA, immunoblotting (approx. 17 kDa), and immunocytochemistry. Staining of the histone H3-Ac-Lys^{9} band in immunoblotting is specifically inhibited with the acetylated histone H3 immunizing peptide but not with the non-acetylated one.

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 dimmers, surrounded by approximately 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, ubiquitinlation and ADP-ribosylatioon 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-transferase (HATs), including Gcn5p, P/CAF, p300/CBP and TAFII250 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 deacetylation by histone deacetylase (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 lysines in histone H3 is also associated with processes apart from transcription. During DNA replication, new histones are rapidly synthesized and assembled into 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.

Monoclonal antibodies specific for Histone H3 acetylated at Lys^{9} are an important tool for studying the role of histone acetylation in transcription processes and in gene regulation.

Reagent

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

Antibody Concentration: Approx. 2 mg/ml.

Precautions and Disclaimer

This product is 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

For continuous use, store 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 dilution samples should be discarded if not used within 12 hours.

Product Profile
Immunoblotting: a working antibody dilution of 1-2 μg/ml is recommended using a whole cell extract of mouse fibroblasts 3T3 cell line treated with sodium butyrate.

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

References

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