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Product Information

Anti-Histone Deacetylase 1 (HDAC1) antibody
Mouse monoclonal, clone HDAC1-21
purified from hybridoma cell culture

Product Number **H6287**

Product Description

Anti-Histone Deacetylase 1 (HDAC1) antibody, Mouse monoclonal (mouse IgG3 isotype) is derived from the HDAC1-21 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to a fragment of human and mouse HDAC1. The isotype is determined using by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2.

Monoclonal Anti-Histone Deacetylase 1 (HDAC1) recognizes human and mouse HDAC1. The product may be used in various immunochemical techniques including ELISA, immunoprecipitation, and immunoblotting (~65 kDa).

Chromatin is composed of basic repeating units called nucleosomes, which are 146 bp of DNA wound around a histone octamer composed of two each of the core histones H2A, H2B, H3 and H4. Reversible acetylation of highly conserved lysine residues in N-terminal tail domains of core histones plays an important role in transcriptional regulation, cell cycle progression, and developmental events. Several histone acetyltransferases (HATs) catalyze the acetylation reaction (GCN5, PCAF, p300/CBP, TAFII250, P/CAF, SRC-1, BRCA-2). Acetylation of the core histones is generally considered to be associated with gene activation, probably through maintenance of the unfolded structure of transcribing nucleosomes.[1,2] Histone acetylation is a dynamic process whose levels are determined by the net activities of HATs and the competing enzymes histone deacetylases (HDACs).[3] Both activities are associated with the nuclear matrix. Six or seven different mammalian HDACs have been described. HDACs 1-3 are similar to the yeast Rpd3 protein, while HDACs 4-6 are similar to the yeast Hda1 protein.[4, 5]

Histone deacetylase activities are often, but not always, associated with transcriptional repression and nucleosomal condensations.[6,7] HDAC1 and 2 are the catalytic subunits of different multiprotein regulatory complexes.[8] The components of such complexes include: corepressors such as mSin3, N-CoR, SMRT, associated proteins such as SAP18, SAP30, RbAp46, RbAp48, c-Ski oncogenic protein, a protein involved in DNA methylation, and more.

Nucleosome remodeling (NRD) and deacetylation complexes containing HDAC1, HDAC2, Mi-2 (CH3, CH4) dermatomyositis specific autoantigen, and MTA2 protein (related to metastasis-associated protein 1) have been described indicating that ATP-dependent nucleosome remodeling activity and histone deacetylation may be interconnected or interdependent.[9, 10] Recruitment of the multiprotein complexes to promoter sites occurs by many sequence specific DNA-binding proteins such as unliganded nuclear hormone receptors, DP1-E2F, YY1, and the Rb family of transcription factors, transcriptional repressors, and tumor suppressors (e.g. BRCA1). Aberrant recruitment of HDACs by certain oncoproteins may occur in certain neoplastic diseases.[11]

Monoclonal antibodies specific for HDAC1 are an important tool for studying the involvement of HDACs in transcription regulation in eukaryotic cells.

Reagent

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

Antibody concentration: ~2 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
For continuous use, store at 2–8 °C for up to one month. For extended 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 concentration of 2-4 μg/mL is recommended using total cell extracts of HeLa cells.

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

References

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