3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-Histone Deacetylase 2 (HDAC2) antibody
Mouse monoclonal, clone HDAC2-62
purified from hybridoma cell culture

Product Number **H2663**

Product Description

Anti-Histone Deacetylase 2 (HDAC2) antibody, Mouse monoclonal (mouse IgG2b isotype) is derived from the HDAC2-62 hybridoma produced by the fusion of mouse myeloma cells (NS1) and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to the C-terminal region of human histone deacetylase 2, with N-terminal added cysteine conjugated to maleimide-activated KLH. This sequence is highly conserved in mouse and chicken (2 and 1 amino acid substitution, respectively). The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Number ISO2).

Anti-Histone Deacetylase 2 (HDAC2) antibody, Mouse monoclonal recognizes recognizes human, bovine, dog, rat, mouse, and chicken HDAC2 (~55 kDa). The antibody epitope resides within amino acids 471-488 of human HDAC2. The antibody can be used in various immunochemical techniques including ELISA, immunoblotting, immunoprecipitation, and immunohistochemistry.

The basic repeating unit of chromatin is the nucleosome, which is composed of a protein octamer containing two each of the core histones H2A, H2B, H3, and H4, surrounded by approximately 146 base pairs of DNA. Reversible acetylation of highly conserved lysine residues in the N-terminal tail domains of core histones plays an important role in transcriptional regulation, cell cycle progression, and development events. Several histone acetyltransferases (HATs) catalyze this acetylation reaction (e.g. 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 in which 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. Eleven different mammalian HDACs have been described. HDACs 1-3 & 8 (Class I) are similar to yeast Rpd3 protein, while HDACs 4-7, 9 & 10 (Class II) are similar to yeast Hda1 protein.[4,5,13] The activities of the histone deacetylases are often, but not always, associated with transcriptional repression and nucleosome condensation.[6,7] HDAC1, HDAC2, and several others are the catalytic subunits of different multiprotein regulatory complexes.[8] Other components of such complexes may include: corepressors such as mSin3, N-CoR, SMRT, associated proteins such as SAP18, SAP30, RbAp46, RbAp48, and c-Ski oncogenic protein (involved in DNA methylation). Nucleosome remodeling and deacetylation (NRD) complexes containing HDAC1, HDAC2, Mi-2 (CH3, CH4) dermatomyositis specific autoantigen, and MAT2 (metastasis-associated protein) (related to MAT1) have been described. It is therefore assumed 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 Rb family of transcription factors, transcriptional repressors, and tumor suppressors (e.g. BRCA1). Aberrant recruitment of HDACs by various oncoproteins may occur in certain neoplastic diseases.[11] It has been found that inhibition of HDAC2 activity by valporic acid induces proteosomal degradation of HDAC2.[12]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, and 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 working antibody concentration of 0.25-0.5 μg/mL is recommended using total cell extracts from NIH-3T3 cells.

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

References

1. Bauer, W.R., et al, *J. Mol. Biol*., **236**, 685-690 (1994).
2. Lee, D.Y., et al., *Cell*, **72**, 73-84 (1993).
3. Taunton, J., et al., *Science*, **272**, 408-411 (1996).
4. Grozinger, C.M., et al., *Proc. Natl. Acad. Sci. USA*, **96**, 4868-4873 (1999).
5. Fischle, W., et al., *J. Biol. Chem*., **274**, 11713-11720 (1999).
6. Wolffe, A.P., *Science*, **272**, 371-372 (1996).
7. Grunstein, M., *Nature*, **389**, 349-352 (1997).
8. Hassig, C.A., et al., *Proc. Natl. Acad. Sci. USA*, **95**, 3519-3524 (1998).
9. Tong, J.K., et al., *Nature*, **395**, 917-921 (1998).
10. Zhang, Y., et al., *Cell*, **95**, 279-289 (1998).
11. Lin, R.J., et al., *Nature*, **391**, 811-814 (1998).
12. Kramer, O.H., et al., *EMBO*, **22**, 3411-3420 (2003).
13. Gao, L., et al., *J. Biol. Chem*., **277**, 25748-25755 (2002).

VS,DS,PHC,MAM 08/19-1