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Product Information

Anti-Histone Deacetylase 5 (HDAC5) (NA-16)
produced in rabbit, affinity isolated antibody

Catalog Number **H8163**

Product Description

Anti-Histone Deacetylase 5 (HDAC5) (NA-16) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acid residues 384-399 of human HDAC5 with N-terminal added cysteine, conjugated to KLH. The corresponding sequence is identical in rat and mouse. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Histone Deacetylase 5 (HDAC5) (NA-16) recognizes human, rat, and mouse HDAC5 by immunoblotting (~124 kDa), immunocytochemistry, and immunoprecipitation. Detection of the HDAC5 band by immunoblotting is specifically inhibited with the immunizing peptide. Additional weak bands may be detected by immunoblotting in some extract preparations.

Regulation of gene expression is mediated by several mechanisms; among them are DNA methylation, ATP-dependent chromatin remodeling, and post-translational modifications of histones. These modifications include the dynamic acetylation and deacetylation of ε-amino groups of lysine residues present in the tail of core histones.[1] The enzymes responsible for this reversible acetylation/deacetylation process are histone acetyl-transferases (HATs) and histone deacetylases (HDACs), respectively.[2] While HATs act as transcriptional co-activators, HDACs are part of transcriptional corepressor complexes.[3] Mammalian HDACs can be divided into three classes according to sequence homology.[4] Class I consists of the yeast Rpd3-like proteins HDAC1, HDAC2, HDAC3, and HDAC8. Class II consists of the yeast Hda1-like proteins HDAC4, HDAC5, HDAC6, HDAC7, HDAC9, and HDAC10.[5]

Class III comprises the yeast Sir2-like proteins. Whereas class I HDACs are ubiquitously expressed, most class II HDACs are tissue-specific.[2] The deacetylase activity of class II HDACs is regulated by subcellular localization.[4]

The localization of HDAC5 is both nuclear and cytoplasmic. Shuttling to the cytoplasm occurs during myocyte differentiation; the nuclear export being stimulated by CaMK phosphorylation at Ser^{259} and Ser^{498}. HDAC5 activity is important for the differentiation of muscle cells by binding, through its N-terminal domain, to the MEF2 protein, thus repressing expression of MEF2 down stream genes.[6] Over-expression of HDAC5 in various cancer cells suppresses their growth by induction of apoptosis in a p53-independent manner.[7]

Reagent

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

Antibody Concentration: ~1.0 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 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 dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 2-4 μg/ml is recommended using a whole extract of human embryonal kidney 293T cells and a chemiluminescent detection reagent.

Immunoblotting: a working antibody concentration of 2-4 μg/ml is recommended using a whole extract of rat pheochromocytoma PC-12 cells and a chemiluminescent detection reagent.

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Indirect immunofluorescent staining: a working antibody concentration of 1-2 μg/ml is recommended using cultured 3T3 or HeLA cells.

Immunoprecipitation: 1-2 μg of the antibody immunoprecipitates HDAC5 from an extract of 293T cells expressing recombinant mouse HDAC5.

Immunohistochemistry: a working antibody concentration of 5-10 μg/ml is recommended using formalin-fixed paraffin-embedded human breast carcinoma section

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

References

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4. Khochbin, S., et al., *Curr. Opin. Genet. Dev.*, **11**, 162-166 (2001).
5. Fischle, W., et al., *J. Biol. Chem*., **274**, 11713-11720 (1999).
6. McKinsey, T.A., et al., *Nature*, **408**, 106-111 (2000).
7. Huang, Y., et al., *Cancer Res.*, **62**, 2913-2922 (2002).

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