



3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

Product Information

Monoclonal Anti-Histone Deacetylase 7

Clone HDAC7-97

Purified Mouse Immunoglobulin

Product Number **H 6663**

Product Description

Monoclonal Anti-Histone Deacetylase 7 (HDAC7) (mouse IgG1 isotype) is derived from the hybridoma HDAC7-97 produced by the fusion of mouse myeloma cells (NS1 cells) and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to amino acid residues 137-155 of mouse HDAC7, conjugated to KLH. The isotype is determined using Sigma ImmunoType™ Kit (Sigma ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Sigma ISO-2).

Monoclonal Anti-Histone Deacetylase 7 recognizes human and mouse HDAC7 (approx. 105 kDa). The antibody may be used in ELISA, immunoblotting, immunoprecipitation, and immunocytochemistry.

Regulation of gene expression is mediated by several mechanisms; among them are DNA methylation, ATP-dependent chromatin remodeling, and posttranslational 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 acetyltransferases (HATs) and histone deacetylases (HDACs), respectively.² While HATs act as transcriptional coactivators, 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 Class II HDACs have been implicated in the regulation of muscle differentiation.⁶ Interaction of HDAC4, -5, and -7 with members of the MEF2 family of transcription factors represses their transcriptional activity and prevents myogenesis.⁷ The deacetylase activity of class II HDACs is regulated by subcellular localization.⁴ Although HDAC7 is localized mainly to the cell nucleus, it is also found in the cytoplasm.⁶ Shuttling of HDAC7 between the cell nucleus and the cytoplasm is controlled by a mechanism involving calmodulin-dependent kinase I (CaMKI) and 14-3-3 proteins.⁸ The HDAC7 enzymatic activity depends on its interaction with the class I HDAC3, and the corepressors SMRT and N-CoR.⁶ HDAC7 also interacts with the transcriptional repressor BCL-6.⁹

Reagent

Monoclonal Anti-Histone Deacetylase 7 is 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

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous 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 is not recommended. Storage in frost-free freezers is also 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

By immunoblotting, a working antibody concentration of 0.25-0.5 µg/ml is recommended using cell extracts of human embryonal kidney 293T cells expressing recombinant human HDAC7.

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

References

1. Wang, A.H., et al., *Mol. Cell. Biol.*, **19**, 7816-7827 (1999).
2. Grozinger, C.M., et al., *Proc. Natl. Acad. Sci. USA*, **96**, 4868-4873 (1999).
3. Fischle, W., et al., *Biochem. Cell Biol.*, **79**, 337-348 (2001).
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. Fischle, W., et al., *J. Biol. Chem.*, **276**, 35826-35835 (2001).
7. Dressel, U., *J. Biol. Chem.*, **276**, 17007-17013 (2001).
8. Kao, H.Y., et al., *J. Biol. Chem.*, **276**, 47496-47507 (2001).
9. Lemerrier, C., et al., *J. Biol. Chem.*, **277**, 22045-22052 (2002).

KAA/EK 10/04

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.