

#5392 Store at -20C

HDAC4 (4A3) Mouse mAb


Cell Signaling
TECHNOLOGY®

Orders: 877-616-CELL (2355)
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP	H M R Mk	Endogenous	140	Mouse IgG2a	#P56524	9759

Product Usage Information

Application

 Western Blotting
Immunoprecipitation

Dilution

 1:1000
1:200

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

Specificity / Sensitivity

HDAC4 (4A3) Mouse mAb detects endogenous levels of total HDAC4 protein. The antibody may cross-react with HDAC5.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a recombinant protein corresponding to the amino terminus of human HDAC4 protein. The epitope corresponds to a region surrounding Gln115 of human HDAC4.

Background

Acetylation of the histone tail causes chromatin to adopt an "open" conformation, allowing increased accessibility of transcription factors to DNA. The identification of histone acetyltransferases (HATs) and their large multiprotein complexes has yielded important insights into how these enzymes regulate transcription (1,2). HAT complexes interact with sequence-specific activator proteins to target specific genes. In addition to histones, HATs can acetylate nonhistone proteins, suggesting multiple roles for these enzymes (3). In contrast, histone deacetylation promotes a "closed" chromatin conformation and typically leads to repression of gene activity (4). Mammalian histone deacetylases can be divided into three classes on the basis of their similarity to various yeast deacetylases (5). Class I proteins (HDACs 1, 2, 3, and 8) are related to the yeast Rpd3-like proteins, those in class II (HDACs 4, 5, 6, 7, 9, and 10) are related to yeast Hda1-like proteins, and class III proteins are related to the yeast protein Sir2. Inhibitors of HDAC activity are now being explored as potential therapeutic cancer agents (6,7).

Histone deacetylases (HDACs) interact with an increasing number of transcription factors, including myocyte enhancer factor 2 (MEF2), to negatively regulate gene expression. HDACs are regulated in part by shuttling between the nucleus and cytoplasm, where export to the cytoplasm facilitates gene activation by removing HDACs from their target genes (8,9). The cytoplasmic export is facilitated by 14-3-3 proteins, which bind to specific phosphoserine residues on the HDAC proteins (8,9). These phosphoserine 14-3-3 binding modules are highly conserved between HDAC proteins, allowing for their collective regulation in response to specific cell stimuli. For example, the highly conserved HDAC4 Ser246, HDAC5 Ser259 and HDAC7 Ser155 residues are all phosphorylated by CAMK and PKD kinases in response to multiple cell stimuli, including VEGF-induced angiogenesis in endothelial cells, B cell and T cell activation, and differentiation of myoblasts into muscle fiber (10-14).

Background References

- Marmorstein, R. (2001) *Cell Mol Life Sci* 58, 693-703.
- Gregory, P.D. et al. (2001) *Exp Cell Res* 265, 195-202.
- Liu, Y. et al. (2000) *Mol Cell Biol* 20, 5540-53.
- Cress, W.D. and Seto, E. (2000) *J Cell Physiol* 184, 1-16.
- Gray, S.G. and Ekström, T.J. (2001) *Exp Cell Res* 262, 75-83.
- Thiagalingam, S. et al. (2003) *Ann. N.Y. Acad. Sci.* 983, 84-100.
- Vigushin, D.M. and Coombes, R.C. (2004) *Curr Cancer Drug Targets* 4, 205-18.
- Grozinger, C.M. and Schreiber, S.L. (2000) *Proc Natl Acad Sci USA* 97, 7835-40.
- Wang, A.H. et al. (2000) *Mol Cell Biol* 20, 6904-12.
- Ha, C.H. et al. (2008) *J Biol Chem* 283, 14590-9.
- Wang, S. et al. (2008) *Proc Natl Acad Sci USA* 105, 7738-43.
- Matthews, S.A. et al. (2006) *Mol Cell Biol* 26, 1569-77.
- Parra, M. et al. (2005) *J Biol Chem* 280, 13762-70.
- McKinsey, T.A. et al. (2000) *Nature* 408, 106-11.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

Trademarks and Patents

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

All other trademarks are the property of their respective owners. Visit [cellsignal.com/trademarks](https://www.cellsignal.com/trademarks) for more information.

Limited Uses

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.