

Phospho-HDAC4 (Ser246)/HDAC5 (Ser259)/HDAC7 (Ser155) (D27B5) XP™ Rabbit mAb

- Small 100 µl
(10 western blots)
- Petite 40 µl
(4 western blots)

rev. 01/21/10

This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

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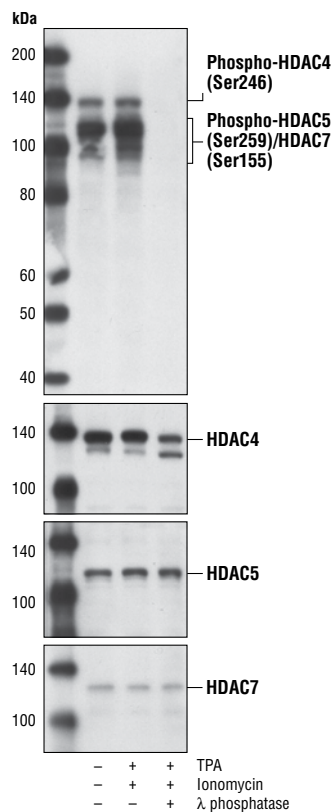
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Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W, IP Endogenous	H, M	140, 124, 120 kDa	Rabbit IgG**

Background: Acetylation of the histone tail causes chromatin to adopt an "open" conformation, allowing transcription factors increased accessibility 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 non-histone 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 (HDACs 1, 2, 3 and 8) proteins 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 phospho-serine residues on the HDAC proteins (8,9). These phospho-serine 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 HDAC 4 Ser246, HDAC 5 Ser259 and HDAC 7 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).

Specificity/Sensitivity: Phospho-HDAC4 (Ser246)/HDAC5 (Ser259)/HDAC7 (Ser155) (D27B5) XP™ Rabbit mAb detects endogenous levels of HDAC4, HDAC5 and HDAC7 proteins only when phosphorylated on Ser246, Ser259 and Ser155, respectively.



Western blot analysis of extracts from D011.10 myocyte hybridoma cells, either untreated or treated for 1 h with TPA (0.2 µM) and ionomycin (0.33 µM), using Phospho-HDAC4 (Ser246)/HDAC5 (Ser259)/HDAC7 (Ser155) (D27B5) XP™ Rabbit mAb. Phospho-specificity of the antibody was determined by treating cell extracts with λ phosphatase. Total HDAC proteins were detected using Histone Deacetylase 4 (HDAC4) Antibody #2072, Histone Deacetylase 5 (HDAC5) Antibody #2082 and Histone Deacetylase 7 (HDAC7) Antibody #2882.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic phospho-peptide (KLH-coupled) corresponding to Ser155 of human HDAC7 protein.

Entrez-Gene ID #51564
Swiss-Prot Acc. #Q8WU14

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.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western blotting 1:1000
Immunoprecipitation 1:50

For application specific protocols please see the web page for this product at www.cellsignaling.com.

Please visit www.cellsignaling.com for a complete listing of recommended companion products.

Background References:

- (1) Marmorstein, R. (2001) *Cell Mol Life Sci* 58, 693–703.
- (2) Gregory, P.D. et al. (2001) *Exp Cell Res* 265, 195–202.
- (3) Liu, Y. et al. (2000) *Mol Cell Biol* 20, 5540–53.
- (4) Cress, W.D. and Seto, E. (2000) *J Cell Physiol* 184, 1–16.
- (5) Gray, S.G. and Ekström, T.J. (2001) *Exp Cell Res* 262, 75–83.
- (6) Thiagalingam, S. et al. (2003) *Ann. N.Y. Acad. Sci.* 983, 84–100.
- (7) Vigushin, D.M. and Coombes, R.C. (2004) *Curr. Cancer Drug Targets* 4, 205–218.
- (8) Grozinger, C.M. and Schreiber, S.L. (2000) *Proc Natl Acad Sci U S A* 97, 7835–40.
- (9) Wang, A.H. et al. (2000) *Mol Cell Biol* 20, 6904–12.
- (10) Ha, C.H. et al. (2008) *J Biol Chem* 283, 14590–9.
- (11) Wang, S. et al. (2008) *Proc Natl Acad Sci USA* 105, 7738–43.
- (12) Matthews, S.A. et al. (2006) *Mol Cell Biol* 26, 1569–77.
- (13) Parra, M. et al. (2005) *J Biol Chem* 280, 13762–70.
- (14) McKinsey, T.A. et al. (2000) *Nature* 408, 106–11.

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

Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA—Peptide

Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey 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 All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.