Revision 3

Store at -20C

#3443

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

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M	Endogenous	140, 124	Rabbit IgG	#P56524, #Q9UQL6, #Q8WUI4	9759, 10014, 51564

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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

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

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to Ser155 of human HDAC7 protein.

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 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).

Background References

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5. Gray, S.G. and Ekström, T.J. (2001) *Exp Cell Res* 262, 75-83.
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7. Vigushin, D.M. and Coombes, R.C. (2004) *Curr Cancer Drug Targets* 4, 205-18.
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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 BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse

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Limited Uses