10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

HDAC3 Antibody

Mouse Monoclonal Antiobody to HDAC3
Catalog # AO1206b

Product Information

Application	WB, IHC, E
Primary Accession	O15379
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	3A7B5
Isotype	Mouse IgG1
Calculated MW	48848
Description	HDAC3: histone deacetylase 3, also known as HD3, RPD3, RPD3-2. Entrez Protein NC_000005. Histones play a critical role in transcriptional regulation, cell cycle progression, and developmental events. Histone acetylation/deacetylation alters chromosome structure and affects transcription factor access to DNA. The protein encoded by this gene belongs to the histone deacetylase/acuc/apha family. It has histone deacetylase activity and represses transcription when tethered to a promoter. It may participate in the regulation of transcription through its binding with the zinc-finger transcription factor YY1. This protein can also down-regulate p53 function and thus modulate cell growth and apoptosis. This gene is regarded as a potential tumor suppressor gene.
Immunogen	Purified recombinant fragment of HDAC3(aa224-428) expressed in E. Coli.

Additional Information

Gene ID	8841
Other Names	Histone deacetylase 3, HD3, RPD3-2, SMAP45, HDAC3
Target/Specificity	Purified recombinant fragment of HDAC3(aa224-428) expressed in E. Coli.
Dilution	WB~~1:500~~2000 IHC~~1:200~~1000 E~~N/A
Format	Ascitic fluid containing 0.03% sodium azide.
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	HDAC3 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	HDAC3
Function	Histone deacetylase that catalyzes the deacetylation of lysine residues on the N-terminal part of the core histones (H2A, H2B, H3 and H4), and some other non-histone substrates (PubMed:21030595, PubMed:21444723, PubMed:23911289, PubMed:25301942, PubMed:28167758, PubMed:28497810, PubMed:32404892, PubMed:22230954). Histone deacetylation gives a tag for epigenetic repression and plays an important role in transcriptional regulation, cell cycle progression and developmental events (PubMed:23911289). Histone deacetylases act via the formation of large multiprotein complexes, such as N-Cor repressor complex, which activate the histone deacetylase activity (PubMed:23911289, PubMed:22230954). Participates in the BCL6 transcriptional repressor activity by deacetylating the H3 'Lys-27' (H3K27) on enhancer elements, antagonizing EP300 acetyltransferase activity and repressing proximal gene expression (PubMed:23911289). Acts as a molecular chaperone for shuttling phosphorylated NR2C1 to PML bodies for sumoylation (By similarity). Contributes, together with XBP1 isoform 1, to the activation of NFE2L2-mediated HMOX1 transcription factor gene expression in a PI(3)K/mTORC2/Akt-dependent signaling pathway leading to endothelial cell (EC) survival under disturbed flow/oxidative stress (PubMed:25190803). Regulates both the transcriptional activation and repression phases of the circadian clock in a deacetylase activity-independent manner (By similarity). During the activation phase, promotes the accumulation of ubiquitinated BMAL1 at the E-boxes and during the repression phase, blocks FBXL3-mediated CRY1/2 ubiquitination and promotes the interaction of CRY1 and BMAL1 (By similarity). The NCOR1-HDAC3 complex regulates the circadian expression of the core clock gene BMAL1 and the genes involved in lipid metabolism in the liver (By similarity). Also functions as a deacetylase for non-histone targets, such as KAT5, MEF2D, MAPK14, RARA and STAT3 (PubMed:15653507, PubMed:21030595, PubMed:21444723, PubMed:25301942, PubMed:28167758). Serves as a corepressor of RARA, mediating its deacetylation and repression, leading to inhibition of RARE DNA element binding (PubMed:28167758). In association with RARA, plays a role in the repression of microRNA-10a and thereby in the inflammatory response (PubMed:28167758). In addition to protein deacetylase activity, also acts as a protein-lysine deacylase by recognizing other acyl groups: catalyzes removal of (2E)-butenoyl (crotonyl), lactoyl (lactyl), 2-hydroxyisobutanoyl (2-hydroxyisobutyryl) and isonicotinyl acyl groups from lysine residues, leading to protein decrotonylation, delactylation, de-2- hydroxyisobutyrylation and deisonicotinylation, respectively (PubMed:28497810, PubMed:29192674, PubMed:34608293, PubMed:34545082, PubMed:35044827). Catalyzes decrotonylation of MAPRE1/EB1 (PubMed:34608293). Mediates delactylation NBN/NBS1, thereby inhibiting DNA double-strand breaks (DSBs) via homologous recombination (HR) (PubMed:38961290).
Cellular Location	Nucleus. Chromosome. Cytoplasm. Cytoplasm, cytosol. Note=Colocalizes with XBP1 and AKT1 in the cytoplasm (PubMed:25190803). Predominantly expressed in the nucleus in the presence of CCAR2 (PubMed:21030595)
Tissue Location	Widely expressed..

References

1. Folia Biol (Praha). 2006;52(1-2):21-33.

2. Mol Cell Biol. 2007 Feb;27(4):1280-95.

3. Mol Carcinog. 2008 Feb;47(2):137-47.

Images

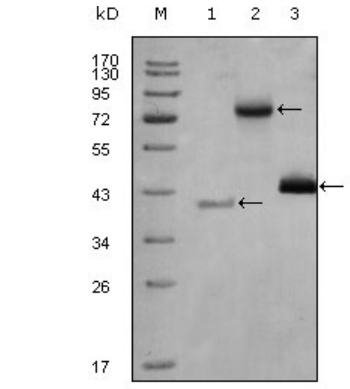


Figure 1: Western blot analysis using HDAC3 mouse mAb against truncated Trx-HDAC3 recombinant protein (1), full length HDAC3-hIgGFc (aa1-428) transfected CHO-K1 cell lysate(2) and Hela cell lysate (3).

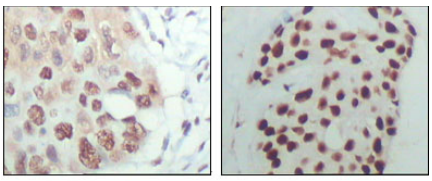


Figure 2: Immunohistochemical analysis of paraffin-embedded human esophagus cancer (left) and breast carcinoma tissue (right), showing nuclear localization with DAB staining using HDAC3 mouse mAb.

Citations

- Class I HDACs are mediators of smoke carcinogen-induced stabilization of DNMT1 and serve as promising targets for chemoprevention of lung cancer.

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