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

HDAC1 Antibody

Catalog # ASC11824

Product Information

Application	WB, E
Primary Accession	Q13547
Other Accession	NP_004955, 13128860
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	55103
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	HDAC1 antibody can be used for detection of HDAC1 by Western blot at 1 - 2 g/ml.

Additional Information

Gene ID	3065
Other Names	Histone deacetylase 1, HD1, 3.5.1.98, HDAC1, RPD3L1
Target/Specificity	HDAC1; HDAC1 antibody is human, mouse and rat reactive. HDAC1 antibody is predicted to not cross-react with other members of the HDAC family.
Reconstitution & Storage	HDAC1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	HDAC1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	HDAC1 {ECO:0000303|PubMed:10846170, ECO:0000312|HGNC:HGNC:4852}
Function	Histone deacetylase that catalyzes the deacetylation of lysine residues on the N-terminal part of the core histones (H2A, H2B, H3 and H4) (PubMed:16762839, PubMed:17704056, PubMed:28497810). Histone deacetylation gives a tag for epigenetic repression and plays an important role in transcriptional regulation, cell cycle progression and developmental events (PubMed:16762839, PubMed:17704056). Histone deacetylases act via the formation of large multiprotein complexes (PubMed:16762839, PubMed:17704056). Acts as a component of the histone deacetylase NuRD complex which participates in the remodeling of chromatin (PubMed:16428440, PubMed:28977666). As part of the SIN3B complex is recruited downstream of the constitutively active genes transcriptional start sites through interaction with histones and mitigates histone acetylation and

RNA polymerase II progression within transcribed regions contributing to the regulation of transcription (PubMed:21041482). Also functions as a deacetylase for non-histone targets, such as NR1D2, RELA, SP1, SP3, STAT3 and TSHZ3 (PubMed:12837748, PubMed:16285960, PubMed:16478997, PubMed:17996965, PubMed:19343227). Deacetylates SP proteins, SP1 and SP3, and regulates their function (PubMed:12837748, PubMed:16478997). Component of the BRG1-RB1-HDAC1 complex, which negatively regulates the CREST-mediated transcription in resting neurons (PubMed:19081374). Upon calcium stimulation, HDAC1 is released from the complex and CREBBP is recruited, which facilitates transcriptional activation (PubMed:19081374). Deacetylates TSHZ3 and regulates its transcriptional repressor activity (PubMed:19343227). Deacetylates 'Lys-310' in RELA and thereby inhibits the transcriptional activity of NF-kappa-B (PubMed:17000776). Deacetylates NR1D2 and abrogates the effect of KAT5- mediated relieving of NR1D2 transcription repression activity (PubMed:17996965). Component of a RCOR/GFI/KDM1A/HDAC complex that suppresses, via histone deacetylase (HDAC) recruitment, a number of genes implicated in multilineage blood cell development (By similarity). Involved in CIART-mediated transcriptional repression of the circadian transcriptional activator: CLOCK-BMAL1 heterodimer (By similarity). Required for the transcriptional repression of circadian target genes, such as PER1, mediated by the large PER complex or CRY1 through histone deacetylation (By similarity). In addition to protein deacetylase activity, also has protein-lysine deacylase activity: acts as a protein decrotonylase and delactylase by mediating decrotonylation ((2E)-butenoyl) and delactylation (lactoyl) of histones, respectively (PubMed:28497810, PubMed:35044827).

Cellular Location Nucleus

Tissue Location Ubiquitous, with higher levels in heart, pancreas and testis, and lower levels in kidney and brain

Background

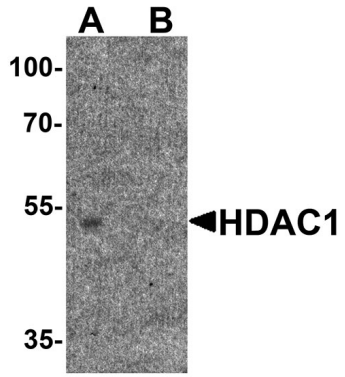
The histone deacetylase (HDAC) family contains multiple members which are divided into four classes. Class I of the HDAC family comprises four members, HDAC1, 2, 3, and 8, each of which contains a deacetylase domain and exhibits a different, individual substrate specificity and function in vivo (1). HDAC1 is responsible for the deacetylation of lysine residues on the N-terminal part of the core histones (H2A, H2B, H3 and H4) (1,2). HDAC1 gives a tag for epigenetic repression and plays an important role in transcriptional regulation, cell cycle progression and developmental events (3,4).

References

Taunton J, Hassig CA, and Schreiber SL. A mammalian histone deacetylase related to the yeast transcriptional regulator Rpd3p. Science 1996; 272:408-11.
Cai RL, Yan-Neale Y, Cueto MA, et al. HDAC1, a histone deacetylase, forms a complex with Hus1 and Rad9, two G2/M checkpoint Rad proteins. J. Biol. Chem. 2000; 275:27909-16.
Winter M, Moser MA, Meunier D, et al. Divergent roles of HDAC1 and HDAC2 in the regulation of epidermal development and tumorigenesis. EMBO J. 2013; 32:3176-91.
Turgeon N, Blais M, Gagné JM, et al. HDAC1 and HDAC2 restrain the intestinal inflammatory response by regulating intestinal epithelial cell differentiation. PLoS One 2013; 8:e73785.

Images

Western blot analysis of HDAC1 in human brain tissue lysate with HDAC1 antibody at 1 µg/ml in (A) the absence



and (B) the presence of blocking peptide.