Recombinant HDAC1 protein

Catalog No: 31504, 31908
Expressed In: Baculovirus

Quantity: 50, 1000 µg
Concentration: 0.4 µg/µl
Source: Human

Buffer Contents: Full length recombinant HDAC1 protein was expressed in Sf9 cells and is supplied in 25 mM HEPES-NaOH pH 7.5, 300 mM NaCl, 5% glycerol, 0.04% Triton X-100, 0.2 mM TCEP.

Background: HDAC1 (Histone Deacetylase 1) is a member of the class I mammalian histone deacetylases (HDACs) involved in regulating chromatin structure during transcription. These enzymes catalyze the removal of acetyl groups from lysine residues of histones and other cellular proteins. Lysine N-ε-acetylation is a dynamic, reversible and tightly regulated protein and histone modification that plays a major role in regulation of gene expression in various cellular functions. It consists of the transfer of an acetyl moiety from an acetyl coenzyme A to the ε-amino group of a lysine residue. *In vivo*, acetylation is controlled by the antagonistic activities of histone acetyltransferases (HATs) and histone deacetylases (HDACs). The HDACs are grouped into four classes, on the basis of similarity to yeast counterparts: class I (HDAC1, HDAC2, HDAC3 and HDAC8), class II (HDAC4, HDAC5, HDAC6, HDAC7, HDAC9 and 10), class III (SIRT1-7) and class IV (HDAC11).

HDAC1 and HDAC2 are recruited to Mad-Max complexes, which associate with the Sin3 scaffold protein, and are required for the transcriptional repression of Mad-Max target genes. HDAC1 is also involved in the regulation of p53. HDAC1 is expressed in various tissues. HDAC1, HDAC2 and HDAC3 are also ubiquitously expressed and can deacetylate both H3 and H4 in free histones or nucleosome substrate.

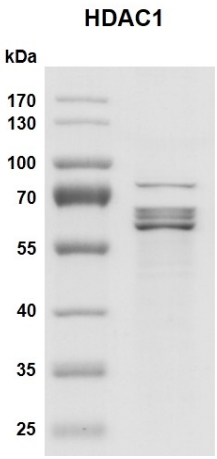
Protein Details: Recombinant human HDAC1 was expressed in Sf9 cells as the full length protein (accession number NP_004955.2) with a C-terminal FLAG-Tag. The molecular weight of the protein is 56 kDa. The recombinant protein is > 45% pure by SDS-PAGE.

Application Notes: Recombinant HDAC1 is suitable for the study of enzyme kinetics, screening inhibitors, and selectivity profiling. Active Motif offers a variety of protein screening tools including HDAC Assay Kits.

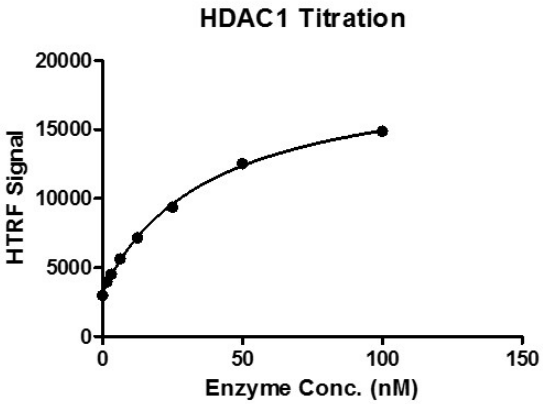
HDAC Activity Assay Conditions: 1 µM H3K9ac peptide was incubated with different concentrations of HDAC1 protein in 10 µl reaction system containing 25 mM Tris-HCl pH 8.0, 137 mM NaCl, 2.7 mM KCl, 1 mM MgCl2, 0.1 mg/ml BSA for 30 min at 37°C, then 10 µl anti-H3K9me0 antibody and SA-XL665 mixture (1:100 dilution in HTRF Detection Buffer) was added to each reaction system and incubated for 1 h at room temperature. HTRF assay was used for detection.

References:
This product was used in the following publications:
Bio. Protoc. (2018). 8(14): pii: e2924. PMID: 30283810.
Nat Commun. (2018). Jan 9;9(1):105. PMID: 29317660.

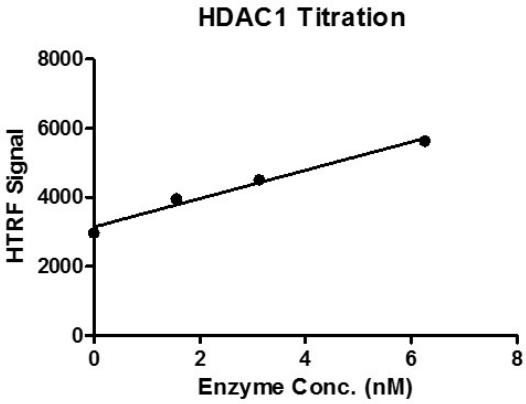
Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is guaranteed for 6 months from date of receipt.



Recombinant HDAC1 protein gel.
HDAC1 protein was run on an 8% SDS-PAGE gel and stained with Coomassie blue.



Recombinant HDAC1 activity by HTRF Assay.
1 µM histone peptide H3K9ac was incubated with various concentrations of HDAC1 protein in reaction buffer for 30 min. at 37&deg C. H3K9me0 antibody was used to detect reaction products.



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