## Recombinant HDAC1 protein



Catalog No: 31342 Expressed In: Baculovirus Quantity: 25 µg Concentration: 0.1 µg/µl Source: Human

**Buffer Contents:** Full length recombinant HDAC1 protein supplied at a concentration of 0.1 µg/µl in 40 mM Tris-HCl, pH 8.0, 110 mM NaCl, 2.2 mM KCl, 100 ng/µl FLAG peptide and 20% glycerol.

**Background: HDAC1 (Histone Deacetylase 1**, also designated **HD1**) 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  $\varepsilon$ -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:** HDAC1 is a histone deacetylase with broad specificity. Recombinant human HDAC1 was expressed in a baculovirus expression system as the full length protein (accession number NM\_004964) with a C-terminal His tag and C-terminal FLAG tag. The molecular weight of the protein is 56 kDa. This recombinant protein is ~69% pure by SDS-PAGE.

**Application Notes:** Recombinant HDAC1 is suitable for use in histone deacetylase assays. This protein is useful for the study of enzyme kinetics, screening inhibitors, and selectivity profiling.

## Specific Activity: 460 pmol/min/µg.

**Assay conditions:** Prepare 25 mM Tris-HCl, pH 8.0, 137 mM NaCl, 2.7 mM KCl, 1 mM MgCl<sub>2</sub>, 0.1 mg/ml BSA, 20  $\mu$ M HDAC substrate and recombinant HDAC1 protein (titrated at various amounts). Incubate for 30 minutes at 37°C followed by developing for 15 minutes at room temperature.

**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.

This product is for research use only and is not for use in diagnostic procedures.



## Recombinant HDAC1 protein gel.

HDAC1 run on a 4-20% SDS-PAGE gel and stained with Coomassie blue.



## Recombinant HDAC1 protein activity assay.

Recombinant HDAC1 activity measured using a fluorescent histone deacetylase assay.