PRODUCT INFORMATION

HDAC8 (human, recombinant)

Item No. 19380

Overview and Properties

Synonym:	Histone Deacetylase 8
Source:	Active recombinant C-terminal hexahistidine-tagged protein expressed in *E. coli*
Amino Acids:	2-377 (full length)
Uniprot No.:	Q9BY41
Molecular Weight:	45.3 kDa
Storage:	-80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein
Stability:	≥6 months
Purity:	≥80% estimated by SDS-PAGE
Supplied in:	10 mM Tris, pH 7.5, containing 100 mM NaCl, 3 mM $MgCl_2$, and 20% glycerol
Protein Concentration:	***batch specific*** mg/ml
Activity:	***batch specific*** U/ml
Specific Activity:	***batch specific*** U/mg
Unit Definition:	One unit is the amount of enzyme required to release 1 nmol/min acetate from 100 µM acetylated p53 peptide (Item No. 10010995) at 37°C in 25 mM Tris, pH 8.0, 137 mM NaCl, 2.7 mM KCl, and 1 mM $MgCl_2$.

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images

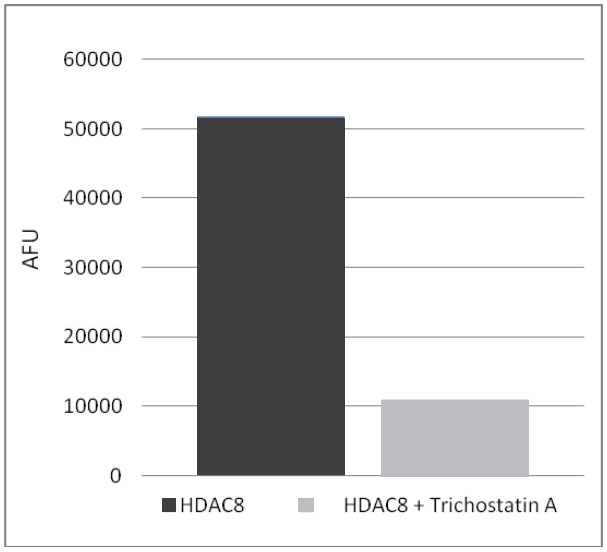
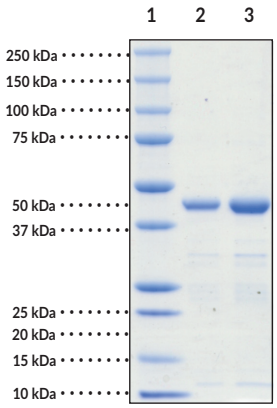


Figure 1: HDAC8 activity was inhibited by a known inhibit Trichostatin A.



Lane 1: MW Markers
Lane 2: HDAC8 (2 µg)
Lane 3: HDAC8 (4 µg)

Representative gel image shown; actual purity may vary between each batch.

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Description

Histone deacetylase 8 (HDAC8) is a class I HDAC that catalyzes the zinc-dependent deacetylation of core histones.[1,2] It is composed of a single α/β domain with an N-terminal deacetylase active site, which can be disrupted by phosphorylation of a proximal serine.[3] HDAC8 is ubiquitously expressed in human tissues and, unlike most other HDACs, is localized to both the cytosol and nucleus.[4] It associates with other proteins and transcription factors to regulate gene expression. HDAC8 has a flexible active site that can deacetylate lysines from both histone tails and cytosolic proteins.[3] It deacetylates pyruvate kinase M2 (PKM2), inducing its relocalization to the nucleus where it binds β-catenin and promotes cyclin D1 expression and cell cycle progression in HepG2 hepatocellular carcinoma (HCC) cells.[5] HDAC8 associates with RUNX family transcription factor 1 (RUNX1) and suppresses the expression of RUNX1-regulated genes, which code for proteins involved in cytokine expression, cell differentiation, cell cycle progression, and tumor suppression, in COS-7 cells.[6] Inhibition of HDAC8 decreases tumor volume and increases intratumoral apoptosis without reducing body weight in a neuroblastoma mouse xenograft model.[7] Cayman's HDAC8 (human, recombinant) protein can be used for enzyme activity assay and Western blot applications.

References

1. Lin, H.-Y., Chen, C.-S., Lin, S.-P., *et al.* Targeting histone deacetylase in cancer therapy. *Medicinal Research Reviews* **26(4)**, 397-413 (2006).
2. Huang, L. Targeting histone deacetylases for the treatment of cancer and inflammatory diseases. *J. Cell. Physiol.* **209(3)**, 611-616 (2006).
3. Somoza, J.R., Skene, R.J., Katz, B.A., *et al.* Structural snapshots of human HDAC8 provide insights into the class I histone deacetylases. *Structure* **12(7)**, 1325-1334 (2004).
4. Xia, J.-K., Qin, X.-Q., Zhang, L., *et al.* Roles and regulation of histone acetylation in hepatocellular carcinoma. *Front. Genet.* **13**, 982222 (2022).
5. Zhang, R., Shen, M., Wu, C., *et al.* HDAC8-dependent deacetylation of PKM2 directs nuclear localization and glycolysis to promote proliferation in hepatocellular carcinoma. *Cell Death Dis.* **11(12)**, 1036 (2020).
6. Durst, K.L., Lutterbach, B., Kummalue, T., et al. The inv(16) fusion protein associates with corepressors via a smooth muscle myosin heavy-chain domain. *Mol. Cell Biol.* **23(2)**, 607-619 (2003).
7. Rettig, I., Koeneke, E., Trippel, F., *et al.* Selective inhibition of HDAC8 decreases neuroblastoma growth *in vitro* and *in vivo* and enhances retinoic acid-mediated differentiation. *Cell Death Dis.* **6(2)**, e1657 (2015).

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