PRODUCT INFORMATION

HDAC5 (human, recombinant)

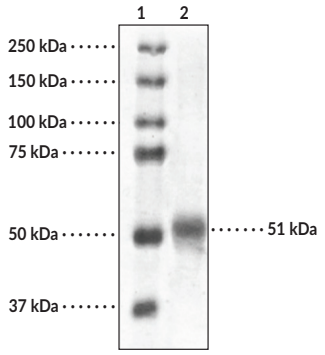
Item No. 10009379

Overview and Properties

Synonym:	Histone Deacetylase 5
Source:	Active recombinant human C-terminal His-tagged HDAC5 catalytic domain expressed in insect cells
Amino Acids:	656-1,122
Uniprot No.:	Q9UQL6
Molecular Weight:	51 kDa
Storage:	-80°C (as supplied)
Stability:	≥6 months
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	45 mM Tris-HCl, pH 8.0, 124 mM sodium chloride, 2.4 mM potassium chloride, 225 imidazole, and 10% glycerol
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
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 pmol of acetate per minute at 37°C in 25 mM Tris/HCl, pH 8.0, 137 mM sodium chloride, 2.7 mM potassium chloride, 1 mM magnesium chloride, 0.1 mg/ml BSA, and 20 µM fluorogenic HDAC class 2a substrate.

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

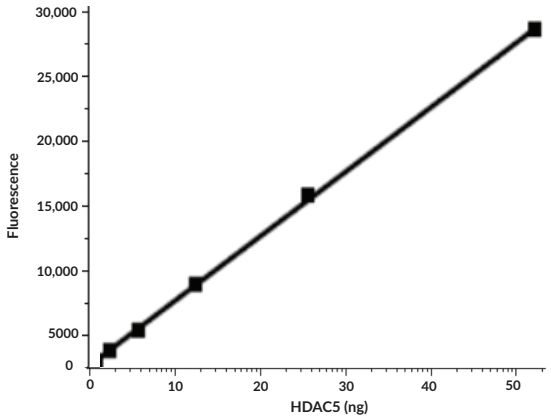
Images



Lane 1: MW Markers
Lane 2: HDAC5 (3 µg)

SDS-PAGE Analysis of HDAC5.

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



HDAC5 Deacetylase Activity

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Histone deacetylase 5 (HDAC) is a zinc-dependent metalloenzyme and class IIa HDAC.[1] It is composed of an N-terminal regulatory domain, which contains a myocyte-specific enhancer factor 2 (MEF2) binding site, two 14-3-3 binding sites, and a nuclear localization signal, a catalytic domain, and a C-terminal domain that contains a nuclear export signal. HDAC5 shuttles between the cytoplasm and nucleus in a manner dependent on calcium/calmodulin-dependent protein kinase (CaMK) and 14-3-3 and is mainly expressed in the heart, but is also found in brain, breast, colon, and prostate tissues.[2-4] It acts as a transcriptional corepressor and has many binding partners, including the transcriptional coactivator myocardin, which is involved in smooth muscle differentiation.[1] Knockout of *Hdac5* induces cardiac hypertrophy in mice and impairs spatial memory formation in a mouse model of Alzheimer's disease.[5,6] Tumor levels of HDAC5 are increased in various cancer types.[7] Cayman's HDAC5 (human, recombinant) protein can be used for enzyme activity assays.

References

1. Yang, X.J. and Grégoire, S. Class II histone deacetylases: From sequence to function, regulation, and clinical implication. *Mol. Cell. Biol.* **25(8)**, 2873-2884 (2005).
2. McKinsey, T.A., Zhang, C.L., and Olson, E.N. Identification of a signal-responsive nuclear export sequence in class II histone deacetylases. *Mol. Cell. Biol.* **21(18)**, 6312-6321 (2001).
3. Grozinger, C.M. and Schreiber, S.L. Regulation of histone deacetylase 4 and 5 and transcriptional activity by 14-3-3-dependent cellular localization. *Proc. Natl. Acad. Sci. USA* **97(14)**, 7835-7840 (2000).
4. de Ruijter, A.J., van Gennip, A.H., Caron, H.N., *et al.* Histone deacetylases (HDACs): Characterization of the classical HDAC family. *Biochem J.* **370(Pt 3)**, 737-749 (2003).
5. Chang, S., McKinsey, T.A., Zhang, C.L., *et al.* Histone deacetylases 5 and 9 govern responsiveness of the heart to a subset of stress signals and play redundant roles in heart development. *Mol. Cell. Biol.* **24(19)**, 8467-8476 (2004).
6. Agis-Balboa, R.C., Pavelka, Z., Kerimoglu, C., *et al.* Loss of HDAC5 impairs memory function: Implications for Alzheimer's disease. *J. Alzheimers Dis.* **33(1)**, 35-44 (2013).
7. Yang, J., Gong, C., Ke, Q., *et al.* Insights into the function and clinical application of HDAC5 in cancer management. *Front. Oncol.* **11:661620**, (2021).

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