TECHNICAL DATASHEET

LOT: 001

HOLOGIC® Diagenode

HDAC1 antibody

Cat. No. C15200144

Lot:	001
Size:	50 µg
Type:	Monoclonal, **ChIP-grade**, **CUT&Tag-grade**
Isotype:	IgG1
Source:	Mouse
Concentration:	2 µg/µl

Specificity:	Human: positive. Other species: not tested.
Purity:	Protein A purified monoclonal antibody
Storage buffer:	PBS containing 0.05% azide.

Storage: Store at -20°C; for long storage, store at -80°C. Avoid multiple freeze-thaw cycles.

Precautions: This product is for research use only. Not for use in diagnostic or therapeutic procedures.

Description: Monoclonal antibody raised in mouse against human HDAC1 (Histone deacetylase 1), using a KLH-conjugated synthetic peptide containing a sequence from the C-terminal region of the protein.

Applications

Applications	Suggested dilution	References
ChIP*	2 µg per ChIP	Fig 1
CUT&Tag	1 µg	Fig 2
Western blotting	1:2,000	Fig 3, 4
Immunofluorescence	1:500	Fig 5

*Please note that the optimal antibody amount per IP should be determined by the end-user. We recommend testing 1-5 µg per IP.

Target description

HDAC1 (UniProt/Swiss-Prot entry Q13547) catalyses the deacetylation of lysine residues on the N-terminal part of the core histones (H2A, H2B, H3 and H4). Acetylation and deacetylation of these highly conserved lysine residues is important for the control of gene expression and HDAC activity is associated with gene repression. Histone deacetylation is established by the formation of large multiprotein complexes. HDAC1 also interacts with the retinoblastoma tumor suppressor protein and is able to deacetylate p53. Therefore, it plays an essential role in cell proliferation and differentiation and in apoptosis.

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Results

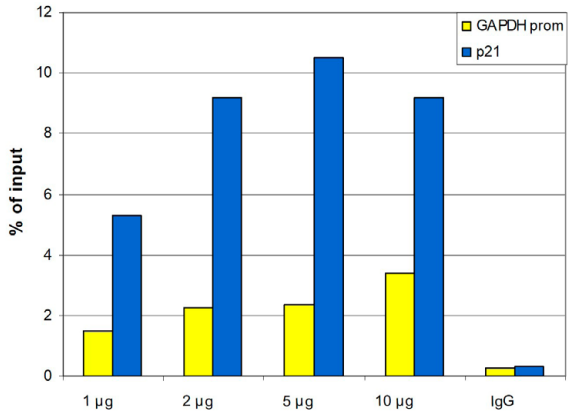

Figure 1: ChIP results obtained with the monoclonal antibody directed against HDAC1

ChIP assays were performed using human HeLa cells, the monoclonal antibody against HDAC1 (cat. No. C15200144) and optimized PCR primer sets for qPCR. A titration of the antibody consisting of 1, 2, 5, and 10 µg per ChIP experiment was analysed. IgG (5 µg/IP) was used as negative IP control. QPCR was performed with primers for the GAPDH promoter and for the coding region of p21, a known target gene of HDAC1. Figure 1 shows the recovery, expressed as a % of input (the relative amount of immunoprecipitated DNA compared to input DNA after qPCR analysis).

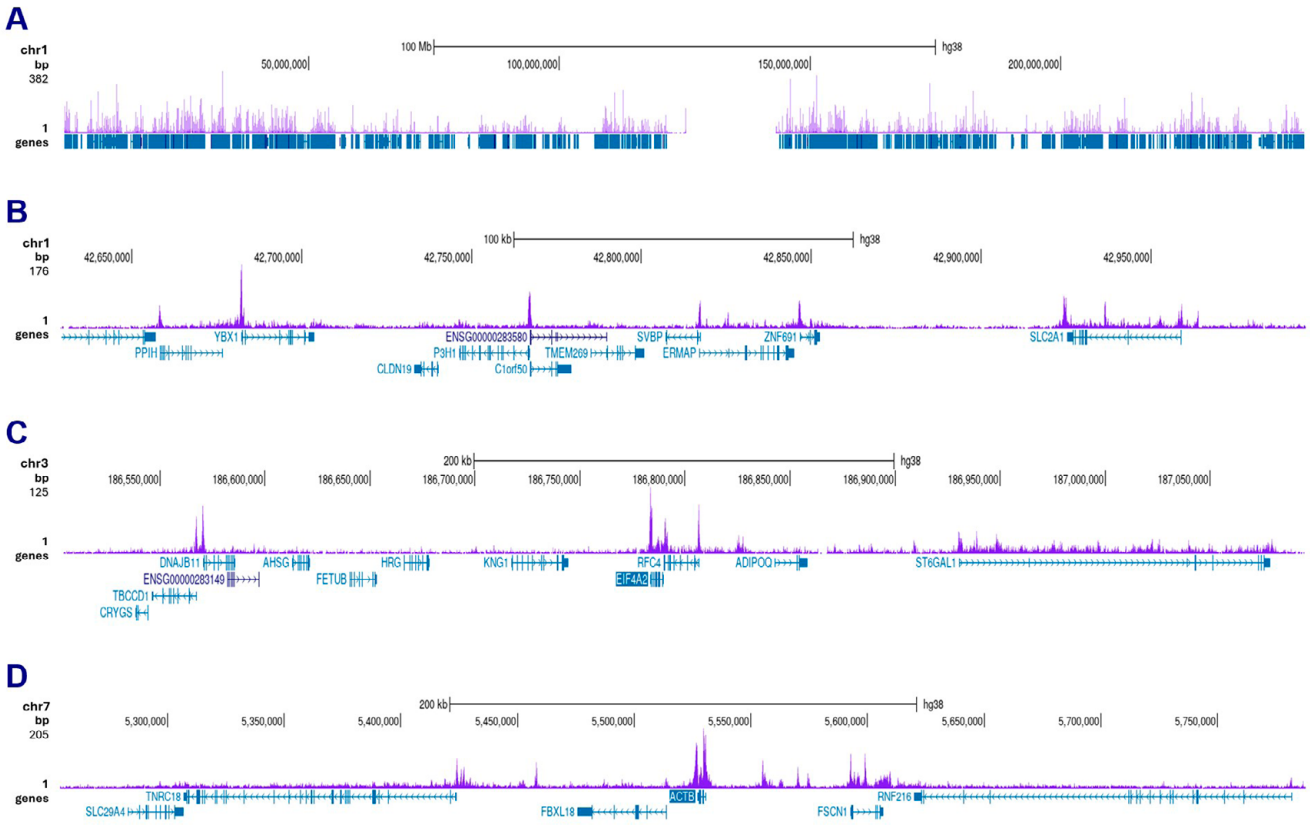

Figure 2: CUT&Tag results obtained with the monoclonal antibody directed against HDAC1

CUT&Tag was performed on 50,000 K562 cells using 1 µg of the antibody against HDAC1 (cat. No. C15200144) and the Universal CUT&Tag kit (cat. No. C01070024). The libraries were subsequently analysed on an Illumina NovaSeqX sequencer (2x150 bp paired-end reads) according to the manufacturer's instructions. The tags were aligned to the human genome (hg38) using the BWA algorithm. Figure 2 shows the peak distribution along the complete sequence and a 300 kb region of chromosome 1 (figure 2A and B) and in 2 genomic regions on chromosome 3 and 7 (figure 2C and D, respectively).

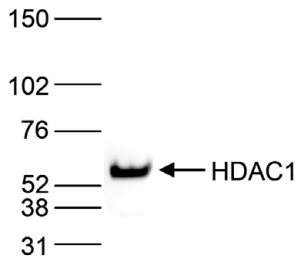

Figure 3: Western blot analysis using the monoclonal antibody directed against HDAC1

Nuclear extracts from HeLa cells (40 µg) were analysed by Western blot using the monoclonal antibody against HDAC1 (cat. No. C15200144) diluted 1:2,000 in TBS-Tween containing 5% skimmed milk. The position of the protein of interest is indicated on the right (expected size: 55 kDa); the marker (in kDa) is shown on the left.

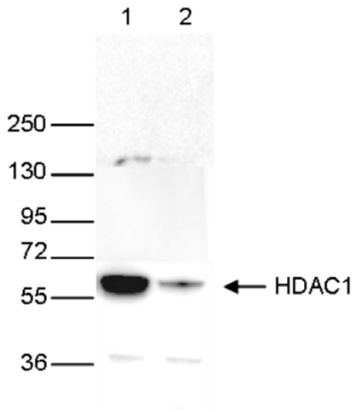

Figure 4: Western blot analysis using the monoclonal antibody directed against HDAC1

Whole cell extracts (40 µg) from HeLa cells transfected with HDAC1 siRNA (lane 2) and from an untransfected control (lane 1) were analysed by Western blot using the antibody against HDAC1 (cat. No. C15200144) diluted 1:1,000 in TBS-Tween containing 5% skimmed milk. The position of the protein of interest is indicated on the right (expected size: 55 kDa); the marker (in kDa) is shown on the left.

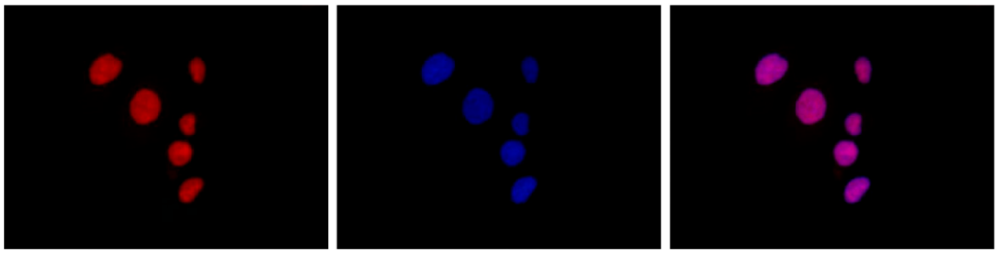

Figure 5: Immunofluorescence using the monoclonal antibody directed against HDAC1

HeLa cells were stained with the antibody against HDAC1 (cat. No. C15200144) and with DAPI. Cells were fixed with 4% formaldehyde for 10' and blocked with PBS/TX-100 containing 5% normal goat serum and 1% BSA. The cells were immunofluorescently labelled with the HDAC1 antibody (left) diluted 1:500 in blocking solution followed by an anti-mouse antibody conjugated to Alexa594. The middle panel shows staining of the nuclei with DAPI. A merge of the two stains is shown on the right.