abcam

ab51832

Anti-HDAC2 antibody [3F3]

KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	3F3
Purification technique	Affinity purification
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat, Chicken, Cow
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000 - 1/10000
Notes	-

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Predicted

Species	Rat, Chicken, Cow
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/25 - 1/100

Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat, Chicken, Cow
Dilution info	-
Notes	-

Target data

See full target information HDAC2

Function

Histone deacetylase that catalyzes the deacetylation of lysine residues on the N-terminal part of the core histones (H2A, H2B, H3 and H4) (PubMed:28497810). Histone deacetylation gives a tag for epigenetic repression and plays an important role in transcriptional regulation, cell cycle progression and developmental events (By similarity). Histone deacetylases act via the formation of large multiprotein complexes (By similarity). Forms transcriptional repressor complexes by associating with MAD, SIN3, YY1 and N-COR (PubMed:12724404). Component of a RCOR/GFI/KDM1A/HDAC complex that suppresses, via histone deacetylase (HDAC) recruitment, a number of genes implicated in multilineage blood cell development (By similarity). Acts as a component of the histone deacetylase NuRD complex which participates in the remodeling of chromatin (PubMed:16428440, PubMed:28977666). Component of the SIN3B complex that represses transcription and counteracts the histone acetyltransferase activity of EP300 through the recognition H3K27ac marks by PHF12 and the activity of the histone deacetylase HDAC2 (PubMed:37137925). Also deacetylates non-histone targets: deacetylates TSHZ3, thereby regulating its transcriptional repressor activity (PubMed:19343227). May be involved in the transcriptional repression of circadian target genes, such as PER1, mediated by CRY1 through histone deacetylation (By similarity). Involved in MTA1-mediated transcriptional corepression of TFF1 and CDKN1A (PubMed:21965678). In addition to protein deacetylase activity, also acts as a protein-lysine deacylase by recognizing other acyl groups: catalyzes removal of (2E)-butenoyl (crotonyl), lactoyl (lactyl) and 2-hydroxyisobutanoyl (2-hydroxyisobutyryl) acyl groups from lysine residues, leading to protein decrotonylation, delactylation and de-2-hydroxyisobutyrylation, respectively (PubMed:28497810, PubMed:29192674, PubMed:35044827).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

This monoclonal antibody to HDAC2 has been knockout validated in Western blot. The expected band for HDAC2 was observed in wild type cells and the band was not seen in HDAC2 knockout cells.
Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	HDAC2 or Histone Deacetylase 2 is an important enzyme that plays a role in chromatin remodeling and gene expression regulation. It removes acetyl groups from histone tails allowing chromatin to condense and silencing gene expression. HDAC2 has a molecular weight of approximately 55 kDa. It is expressed in various tissues including brain heart and skeletal muscles indicating its importance in different physiological areas. HDAC2 proteins are often studied using methods like HDAC2 ELISA and HDAC2 anticuero in research settings.
Biological function summary	HDAC2 is involved in cell cycle regulation and differentiation. It is part of the co-repressor complex and interacts with other proteins such as Sin3 and NuRD to repress transcription. These interactions are vital for maintaining normal cellular functions and ensuring proper response to external signals. This protein is also connected to HEK293T cells which are a common model in scientific studies due to their robust expression of proteins like HDAC2.
Pathways	HDAC2 participates in the regulation of transcriptional activity and cellular stress response. It is an important player in the histone modification pathway interacting with proteins such as HDAC1 and transcriptional regulators like REST. HDAC2 is also linked with the Notch signaling pathway which is essential for cell fate

	decisions. These pathways highlight its role in both maintaining cellular homeostasis and adapting to changes in the cellular environment.
Associated diseases and disorders	HDAC2 has a significant connection to neurodegenerative diseases and various cancers. Alzheimer's disease for instance shows altered expression levels of HDAC2 affecting synaptic plasticity and memory formation. In cancer HDAC2 interacts with oncogenic proteins such as p53 influencing tumor progression and metastasis. Monitoring HDAC2 levels and activity could provide insights into disease mechanisms and potential therapeutic targets.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

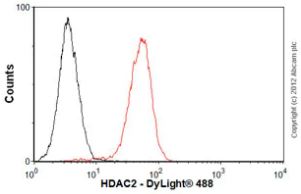
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

4 product images

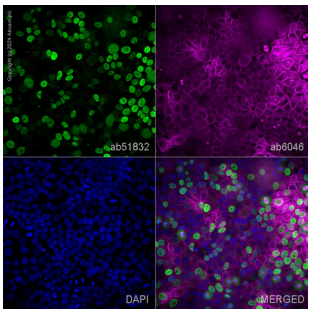


Flow Cytometry (Intracellular) - Anti-HDAC2 antibody [3F3] (ab51832)

HDAC2 Flow Cytometry (Intracellular) staining using mouse Anti-HDAC2 antibody

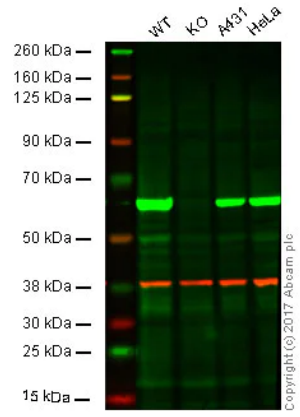
Overlay histogram showing HeLa cells stained with ab51832 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab51832, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution

for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Immunocytochemistry/ Immunofluorescence - Anti-HDAC2 antibody [3F3] (ab51832)

ab51832 staining HDAC2 in MCF7 cells. The cells were fixed with 4% paraformaldehyde (10 min), permeabilized with 0.1% PBS-Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1%PBS-Tween for 1h. The cells were then incubated overnight at 4°C with ab51832 at 5µg/ml and ab6046, Rabbit polyclonal to beta Tubulin - Loading Control. Cells were then incubated with ab150117, Goat polyclonal Secondary Antibody to Mouse IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (shown in green) and ab150080, Goat polyclonal Secondary Antibody to Rabbit IgG - H&L (Alexa Fluor® 594) at 1/1000 dilution (shown in pseudocolour magenta). Nuclear DNA was labelled with DAPI (shown in blue). Image was acquired with a high-content analyser (Operetta CLS, Perkin Elmer) and a maximum intensity projection of confocal sections is shown.



Western blot - Anti-HDAC2 antibody [3F3] (ab51832)

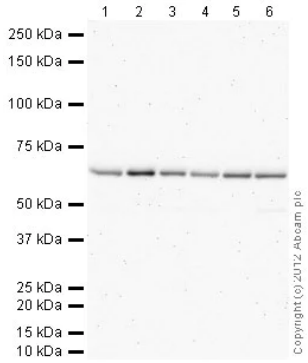
HDAC2 Western blot staining using mouse Anti-HDAC2 antibody

Lane 1: Wild type HAP1 whole cell lysate (20 µg)
Lane 2: HDAC2 knockout HAP1 whole cell lysate (20 µg)
Lane 3: A431 whole cell lysate (20 µg)
Lane 4: HeLa whole cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab51832 observed at 65 kDa. Red - loading control, ab181602, observed at 37 kDa.

ab51832 detected the expected band for HDAC2 in wild-type HAP1 cells and the band was not seen in HDAC2 knockout HAP1 cells. Wild-type and HDAC2 knockout samples were subjected to SDS-PAGE. ab51832 and ab181602 (Rabbit anti GAPDH loading control) were incubated overnight at 4°C at 1000 dilution and 1/10000 dilution respectively. Blots were developed with Goat anti-Mouse IgG H&L (IRDye® 800CW) preabsorbed ab216772 and Goat anti-Rabbit IgG H&L (IRDye® 680RD) preabsorbed ab216777 secondary antibodies at 1/10000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-HDAC2 antibody [3F3] (ab51832)

Predicted band size: 55 kDa



Western blot - Anti-HDAC2 antibody [3F3] (ab51832)

HDAC2 Western blot staining using mouse Anti-HDAC2 antibody

This blot was produced using a 4-12% Bis-tris gel under the MOPS buffer system. The gel was run at 200V for 50 minutes before being transferred onto a Nitrocellulose membrane at 30V for 70 minutes. The membrane was then blocked for an hour using 2% Bovine Serum Albumin before being incubated with ab51832 overnight at 4°C. Antibody binding was detected using an anti-rabbit antibody conjugated to HRP, and visualised using ECL development solution.
All lanes:
Western blot - Anti-HDAC2 antibody [3F3] (ab51832) at 5 µg/mL

Lane 1:

HeLa (Human epithelial carcinoma cell line) Whole Cell Lysate at 20 µg

Lane 2:
HeLa (Human epithelial carcinoma cell line) Nuclear Lysate at 20 µg

Lane 3:
Jurkat (Human T cell lymphoblast-like cell line) Whole Cell Lysate at 20 µg

Lane 4:
NIH 3T3 (Mouse embryonic fibroblast cell line) Whole Cell Lysate at 20 µg

Lane 5:
K562 (Human erythromyeloblastoid leukemia cell line) Whole Cell Lysate at 20 µg

Lane 6:
U2OS (Human osteosarcoma cell line) Whole Cell Lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Mouse IgG H&L (HRP) preadsorbed (ab97040) at 1/10000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 55 kDa

Observed band size: 65 kDa

Exposure time: 16min

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.