abcam

Product datasheet

# Anti-HDAC1 antibody [EPR460(2)] ab109411

KO VALIDATED Recombinant RabMAb

6 Abreviews 29 References 13 Images

## Overview

| | |
|---|---|
| **Product name** | Anti-HDAC1 antibody [EPR460(2)] |
| **Description** | Rabbit monoclonal [EPR460(2)] to HDAC1 |
| **Host species** | Rabbit |
| **Tested applications** | **Suitable for:** Flow Cyt (Intra), IHC-P, WB, IHC-Fr, ICC/IF, IP<br>**Unsuitable for:** ChIP |
| **Species reactivity** | **Reacts with:** Mouse, Rat, Human |
| **Immunogen** | Synthetic peptide. This information is proprietary to Abcam and/or its suppliers. |
| **Positive control** | IHC-Fr: Mouse hippocampus tissue. ICC/IF: NIH/3T3, HeLa cells. |
| **General notes** | This product is a recombinant monoclonal antibody, which offers several advantages including:<br>- High batch-to-batch consistency and reproducibility<br>- Improved sensitivity and specificity<br>- Long-term security of supply<br>- Animal-free production<br>For more information **see here**.<br>Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to **RabMAb® patents**. |

## Properties

| | |
|---|---|
| **Form** | Liquid |
| **Storage instructions** | Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C. Stable for 12 months at -20°C. |
| **Storage buffer** | pH: 7.20<br>Preservative: 0.01% Sodium azide<br>Constituents: 59% PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA |
| **Purity** | Protein A purified |
| **Clonality** | Monoclonal |
| **Clone number** | EPR460(2) |
| **Isotype** | IgG |

## Applications

**The Abpromise guarantee** Our **Abpromise guarantee** covers the use of ab109411 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

| Application | Abreviews | Notes |
|---|---|---|
| **Flow Cyt (Intra)** | | 1/50. |
| **IHC-P** | | 1/50 - 1/100. Perform heat mediated antigen retrieval before commencing with IHC staining protocol. |
| **WB** | ★★★☆☆ **(4)** | 1/1000 - 1/10000. Predicted molecular weight: 55 kDa. |
| **IHC-Fr** | | 1/500.<br>Heat mediated antigen retrieval using sodium citrate buffer (10mM citrate pH 6.0 + 0.05% Tween-20) |
| **ICC/IF** | ★★★★★ **(2)** | 1/50. |
| **IP** | | 1/30. |

**Application notes** Is unsuitable for ChIP.

## Target

**Function** Responsible for the deacetylation of lysine residues on the N-terminal part of the core histones (H2A, H2B, H3 and H4). Histone deacetylation gives a tag for epigenetic repression and plays an important role in transcriptional regulation, cell cycle progression and developmental events. Histone deacetylases act via the formation of large multiprotein complexes. Deacetylates SP proteins, SP1 and SP3, and regulates their function. Component of the BRG1-RB1-HDAC1 complex, which negatively regulates the CREST-mediated transcription in resting neurons. Upon calcium stimulation, HDAC1 is released from the complex and CREBBP is recruited, which facilitates transcriptional activation. Deacetylates TSHZ3 and regulates its transcriptional repressor activity. Deacetylates 'Lys-310' in RELA and thereby inhibits the transcriptional activity of NF-kappa-B.

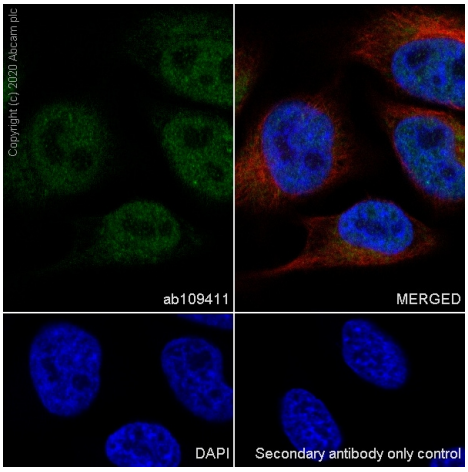
**Tissue specificity** Ubiquitous, with higher levels in heart, pancreas and testis, and lower levels in kidney and brain.

**Sequence similarities** Belongs to the histone deacetylase family. HD type 1 subfamily.

**Post-translational modifications** Sumoylated on Lys-444 and Lys-476; which promotes enzymatic activity. Desumoylated by SENP1.
Phosphorylation on Ser-421 and Ser-423 promotes enzymatic activity and interactions with NuRD and SIN3 complexes.
Ubiquitinated by CHFR, leading to its degradation by the proteasome.

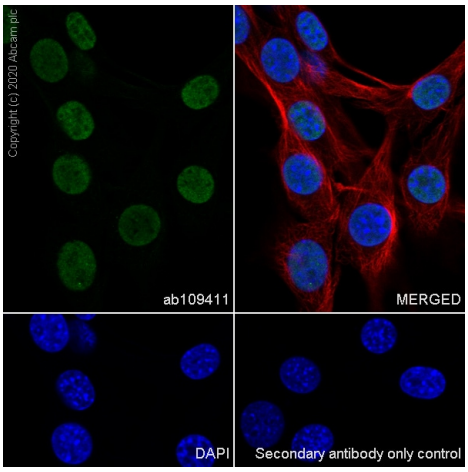
**Cellular localization** Nucleus.

## Images



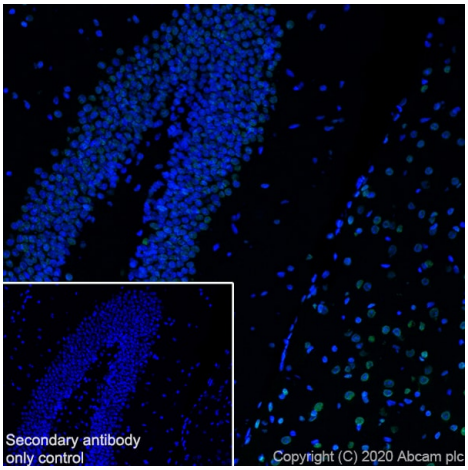

Immunocytochemistry/ Immunofluorescence - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HeLa cells labelling HDAC1 with ab109411 at 1/50 (10.92 ug/ml) dilution, followed by **ab150077** Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 2ug/ml dilution (Green). Confocal image showing mainly nuclear staining in HeLa cell line **ab195889** Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 2.5ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue).
Secondary antibody only control: Secondary antibody is **ab150077** Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1000 2ug/ml dilution.




Immunocytochemistry/ Immunofluorescence - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized NIH/3T3 cells labelling HDAC1 with ab109411 at 1/50 (10.92 ug/ml) dilution, followed by **ab150077** Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 2ug/ml dilution (Green). Confocal image showing nuclear staining in NIH/3T3 cell line **ab195889** Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 2.5ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue).
Secondary antibody only control: Secondary antibody is **ab150077** Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1000 2ug/ml dilution.

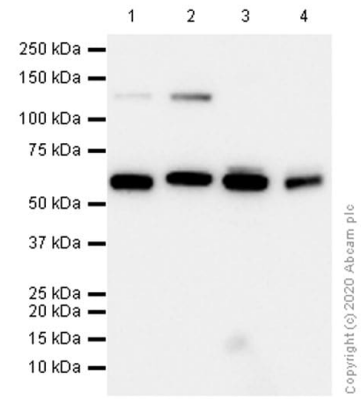



Immunohistochemistry (Frozen sections) - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

Immunohistochemical analysis of 4% PFA-fixed, 0.2% Triton X-100 permeabilized frozen Mouse hippocampus tissue labeling HDAC1 with ab109411 at 1/500 (5.55 ug/ml) dilution followed by **ab150077** AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 (2 ug/ml) dilution (Green). Nuclear staining on mouse hippocampus. is observed. The nuclear counterstain was DAPI (Blue).

Secondary antibody control: Secondary antibody is **ab150077** AlexaFluor®488 Goat anti-Rabbit secondary at 1000 (2 ug/ml) dilution.

Heat mediated antigen retrieval using sodium citrate buffer (10mM citrate pH 6.0 + 0.05% Tween-20).



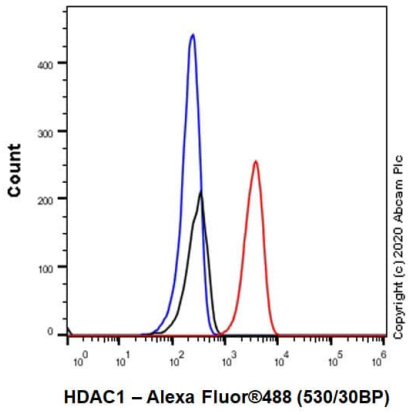

Western blot - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

**All lanes :** Anti-HDAC1 antibody [EPR460(2)] (ab109411) at 1/1000 dilution (Purified)

**Lane 1 :** Jurkat (Human T cell leukemia T lymphocyte) whole cell lysate
**Lane 2 :** HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate
**Lane 3 :** NIH/3T3 (Mouse embryonic fibroblast) whole cell lysate
**Lane 4 :** C6 (Rat glial tumor glial cell) whole cell lysate

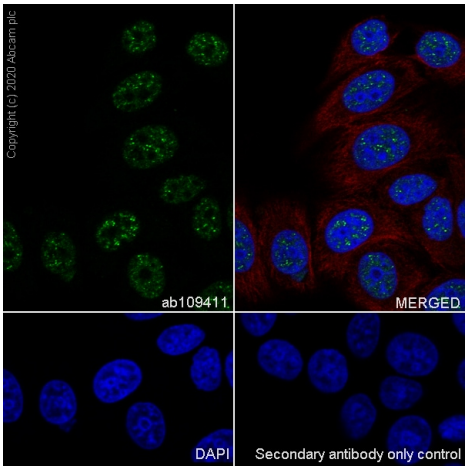
**Secondary**
**All lanes :** Goat Anti-Rabbit IgG H&L (HRP) (**ab97051**) at 1/20000 dilution

**Predicted band size:** 55 kDa



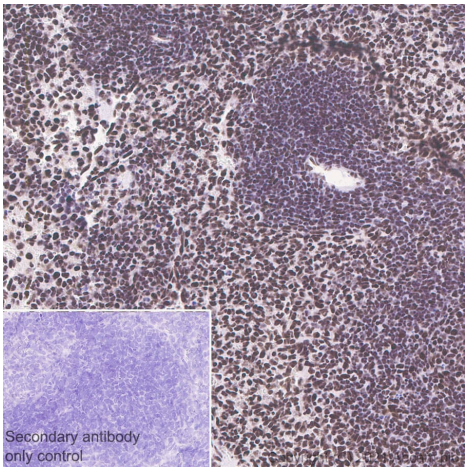

Flow Cytometry (Intracellular) - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

Flow Cytometry analysis of Jurkat (Human T cell leukemia T lymphocyte) cells labelling HDAC1 with Purified ab109411 at 1:20 dilution (5 µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, **ab150081**) secondary antibody was used at 1:2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabelled control - Cell without incubation with primary antibody and secondary antibody (Blue).



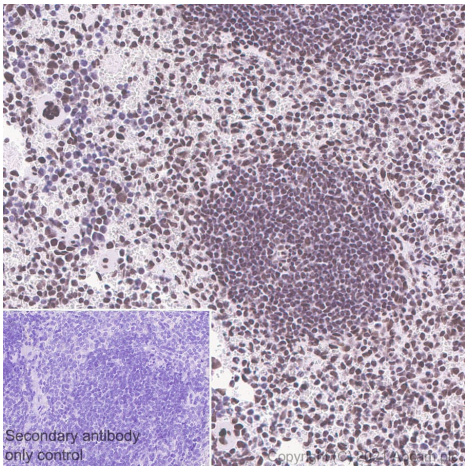

Immunocytochemistry/ Immunofluorescence - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

Immunocytochemistry analysis of MCF7 (Human breast adenocarcinoma epithelial cell) cells labeling HDAC1 with Purified ab109411 at 1:50 dilution (2.4 µg/ml). Cells were fixed in 100% Methanol and permeabilized with 0.1% tritonX-100. Cells were counterstained with Ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, **ab150077**) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



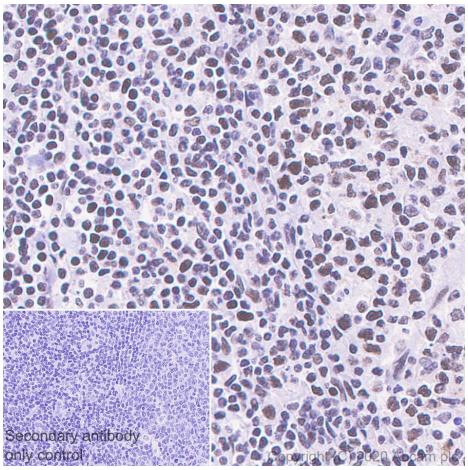

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat spleen tissue sections labeling HDAC1 with Purified ab109411 at 1:100 dilution (1.2 µg/ml). Heat mediated antigen retrieval was performed using . Tissue was counterstained with Hematoxylin. Perform heat mediated antigen retrieval using **ab93684** (Tris/EDTA buffer, pH 9.0) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.



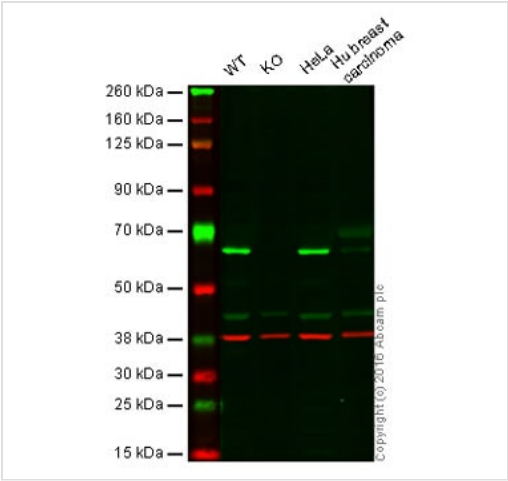

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse spleen tissue sections labeling HDAC1 with Purified ab109411 at 1:100 dilution (1.2 µg/ml). Heat mediated antigen retrieval was performed using . Tissue was counterstained with Hematoxylin. Perform heat mediated antigen retrieval using **ab93684** (Tris/EDTA buffer, pH 9.0) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.



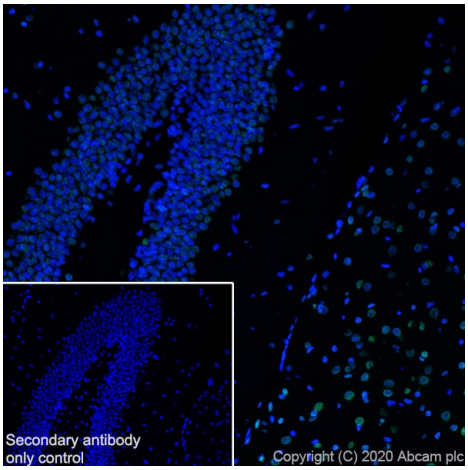

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human tonsil tissue sections labeling HDAC1 with Purified ab109411 at 1:100 dilution (1.2 µg/ml). Heat mediated antigen retrieval was performed using . Tissue was counterstained with Hematoxylin. Perform heat mediated antigen retrieval using **ab93684** (Tris/EDTA buffer, pH 9.0) secondary antibody was used at 1:0 dilution. PBS instead of the primary antibody was used as the negative control.




Western blot - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

**Lane 1**: Wild-type HAP1 cell lysate (20 µg)
**Lane 2**: HDAC1 knockout HAP1 cell lysate (20 µg)
**Lane 3**: HeLa cell lysate (20 µg)
**Lane 4**: Human breast carcinoma lysate (20 µg)
**Lanes 1 - 4**: Merged signal (red and green). Green - ab109411 observed at 65 kDa. Red - loading control, **ab8245**, observed at 37 kDa.
ab109411 was shown to recognize HDAC1 when HDAC1 knockout samples were used, along with additional cross-reactive bands. Wild-type and HDAC1 knockout samples were subjected to SDS-PAGE. ab109411 and **ab8245** (loading control to GAPDH) were diluted 1/1000 and 1/10,000 respectively and incubated overnight at 4°C. Blots were developed withGoat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (**ab216773**) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (**ab216776**) secondary antibodies at 1/10,000 dilution for 1 h at room temperature before imaging

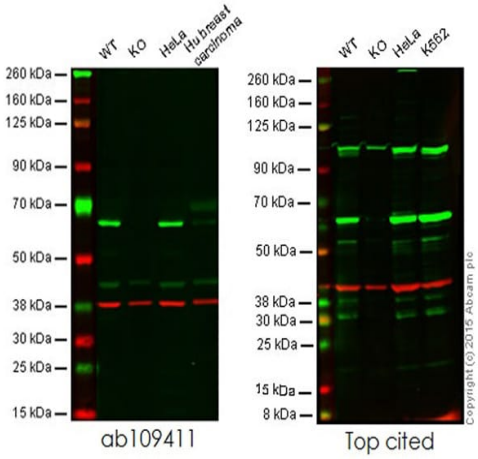



Immunohistochemistry (Frozen sections) - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

Immunohistochemical analysis of 4% PFA fixed, 0.2% Triton X-100 permeabilised Mouse hippocampus staining HDAC1 with ab109411 at 1/500 dilution (5.55 µg/ml). **ab150077** AlexaFluor®488 Goat anti-Rabbit was used as a secondary at 1/1000 (2 µg/ml) dilution. Nuclear counterstain: DAPI.

Nuclear staining on mouse hippocampus.

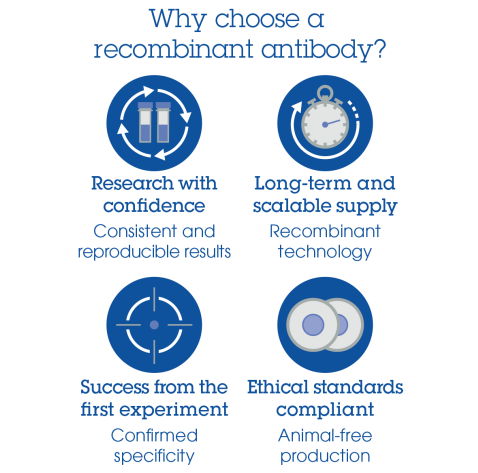
Heat mediated antigen retrieval using sodium citrate buffer (10mM citrate pH 6.0 + 0.05% Tween-20)




Western blot - Anti-HDAC1 antibody [EPR460(2)] (ab109411)

**Lane 1**: Wild-type HAP1 cell lysate (20 µg)
**Lane 2**: HDAC1 knockout HAP1 cell lysate (20 µg)
**Lane 3**: HeLa cell lysate (20 µg)
**Lane 4**: Human breast carcinoma lysate (20 µg) or K562 lysate (20 µg)
**Lanes 1 - 4**: Merged signal (red and green). Green - ab109411 observed at 65 kDa. Red - loading control, **ab8245**, observed at 37 kDa.

This western blot image is a comparison between ab109411 and a competitor's top cited rabbit polyclonal antibody.




Anti-HDAC1 antibody [EPR460(2)] (ab109411)

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