abcam

ab245222

Anti-SMARCD1 antibody [EPR23170-71]

Recombinant | RabMAb | Advanced Validation | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR23170-71
Purification technique	Affinity purification Protein A
Concentration	0.516 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	1/30
Notes	-

Species	Human

Dilution info	1/30
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

IHC-P

Not recommended

Species	Mouse, Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Species	Human
Dilution info	1/50
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

ChIC/CUT&RUN-seq

Tested

Species	Human
Dilution info	2 µg for 10^5 Cells
Notes	-

Expected

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

Target data

See full target information SMARCD1

Function

Involved in transcriptional activation and repression of select genes by chromatin remodeling (alteration of DNA-nucleosome topology). Component of SWI/SNF chromatin remodeling complexes that carry out key enzymatic activities, changing chromatin structure by altering DNA-histone contacts within a nucleosome in an ATP-dependent manner (PubMed:29374058, PubMed:8804307). Belongs to the neural progenitors-specific chromatin remodeling complex (npBAF complex) and the neuron-specific chromatin remodeling complex (nBAF complex). During neural development a switch from a stem/progenitor to a postmitotic chromatin remodeling mechanism occurs as neurons exit the cell cycle and become committed to their adult state. The transition from proliferating neural stem/progenitor cells to postmitotic neurons requires a switch in subunit composition of the npBAF and nBAF complexes. As neural progenitors exit mitosis and differentiate into neurons, npBAF complexes which contain ACTL6A/BAF53A and PHF10/BAF45A, are exchanged for homologous alternative ACTL6B/BAF53B and DPF1/BAF45B or DPF3/BAF45C subunits in neuron-specific complexes (nBAF).

The npBAF complex is essential for the self-renewal/proliferative capacity of the multipotent neural stem cells. The nBAF complex along with CREST plays a role regulating the activity of genes essential for dendrite growth (By similarity). Has a strong influence on vitamin D-mediated transcriptional activity from an enhancer vitamin D receptor element (VDRE). May be a link between mammalian SWI-SNF-like chromatin remodeling complexes and the vitamin D receptor (VDR) heterodimer (PubMed:14698202). Mediates critical interactions between nuclear receptors and the BRG1/SMARCA4 chromatin-remodeling complex for transactivation (PubMed:12917342). Interacts with AKIRIN2 (By similarity).

Storage

Shipped at conditions	Conditional Ambient
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

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

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

Activity summary

	SMARCD1 also known as SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily D member 1 is a component of the SWI/SNF chromatin remodeling complex. The protein has a mass of approximately 50 kDa. It shows expression in various tissues including the brain liver and heart. Alternative names for SMARCD1 include BAF60A indicating its role within the BAF (BRG1/BRM-associated factors) complex.
Biological function summary	SMARCD1 plays a significant role in altering chromatin structure to regulate gene expression. It functions as part of the SWI/SNF complex which modulates access of transcription factors to DNA. This protein contributes to the regulation of various genes involved in cellular processes like proliferation differentiation and DNA repair. The SWI/SNF complex including SMARCD1 alters nucleosome positioning affecting the transcriptional landscape.
Pathways	SMARCD1 influences the expression of genes involved in critical cellular activities. It participates actively in the Wnt signaling and the cell cycle regulation pathways. The Wnt pathway includes critical interactions with proteins like β-catenin which contributes to the regulation of gene transcription related to cell fate and proliferation. SMARCD1's involvement in cell cycle regulation also implicates interactions with proteins such as cyclins and p53.
Associated diseases and disorders	The altered expression or mutation of SMARCD1 relates to conditions like cancer and developmental disorders. Overexpression of SMARCD1 has associations with certain types of cancers including breast cancer where SMARCD1 modulates interactions with key proteins like BRG1 and BRM. Developmental disorders may involve interactions affecting the SWI/SNF complex leading to issues in tissue differentiation and growth.

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

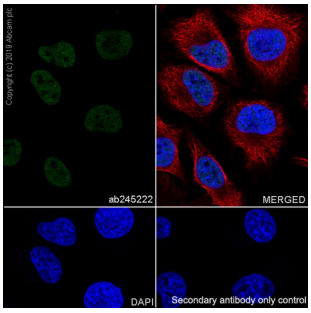
We do not recommend this combination. It is not covered by our product promise.

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.

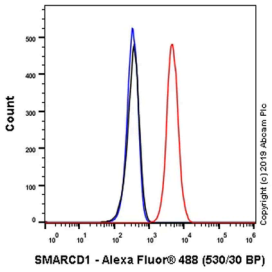
11 product images



Immunocytochemistry/ Immunofluorescence - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

SMARCD1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-SMARCD1 antibody

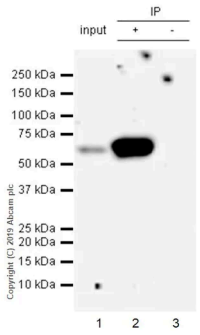
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HeLa (human cervix adenocarcinoma epithelial cell) cells labelling SMARCD1 with ab245222 at 1/50 dilution, followed by ab150077 AlexaFluor®488 Goat anti-Rabbit secondary antibody at 1/1000 dilution (Green). Confocal image showing nuclear staining in HeLa cells. ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).
Secondary antibody only control: Secondary antibody is ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

SMARCD1 Flow Cytometry (Intracellular) staining using rabbit Anti-SMARCD1 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde fixed, 90% methanol permeabilized HeLa (Human cervix adenocarcinoma epithelial cell) cells labelling SMARCD1 with ab245222 at 1/500 dilution (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.



Immunoprecipitation - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

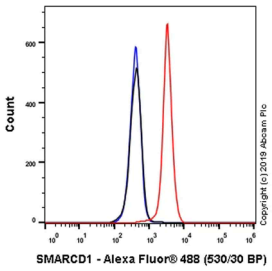
SMARCD1 was immunoprecipitated from 0.35 mg of HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate with ab245222 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab245222 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used as secondary antibody at 1/5000 dilution.
Lane 1: HeLa whole cell lysate 10 (Input).
Lane 2: ab245222 IP in HeLa whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab245222 in HeLa whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 3 minutes.

All lanes:
Immunoprecipitation - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

Predicted band size: 58 kDa

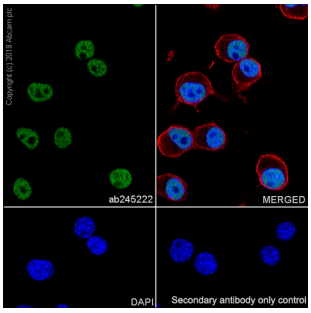
Observed band size: 58 kDa



Flow Cytometry (Intracellular) - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

SMARCD1 Flow Cytometry (Intracellular) staining using rabbit Anti-SMARCD1 antibody

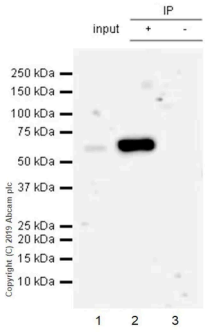
Intracellular flow cytometric analysis of 4% paraformaldehyde fixed, 90% methanol permeabilized NIH/3T3 (Mouse embryonic fibroblast) cells labelling SMARCD1 with ab245222 at 1/500 dilution (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

SMARCD1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-SMARCD1 antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Neuro-2a (mouse neuroblastoma neuroblast) cells labelling SMARCD1 with ab245222 at 1/50 dilution, followed by ab150077 AlexaFluor®488 Goat anti-Rabbit secondary antibody at 1/1000 dilution (Green). Confocal image showing nuclear staining in Neuro-2a cells. ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).
Secondary antibody only control: Secondary antibody is ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution.



Immunoprecipitation - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

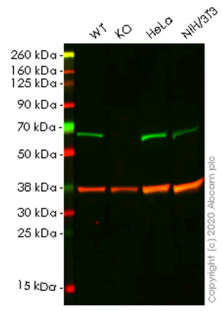
SMARCD1 was immunoprecipitated from 0.35 mg of NIH/3T3 (Mouse embryonic fibroblast) whole cell lysate with ab245222 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab245222 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used as secondary antibody at 1/5000 dilution.
Lane 1: NIH/3T3 whole cell lysate 10 (Input).
Lane 2: ab245222 IP in NIH/3T3 whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab245222 in NIH/3T3 whole cell lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 3 minutes.

All lanes:
Immunoprecipitation - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

Predicted band size: 58 kDa

Observed band size: 58 kDa



Western blot - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

SMARCD1 Western blot staining using rabbit Anti-SMARCD1 antibody

Lanes 1-4: Merged signal (red and green). Green - ab245222 observed at 58 kDa. Red - loading control ab8245 observed at 36 kDa.
ab245222 Anti-SMARCD1 antibody [EPR23170-71] was shown to specifically react with SMARCD1 in wild-type HEK-293T cells. Loss of signal was observed when knockout cell line ab266458 (knockout cell lysate ab259143) was used. Wild-type and SMARCD1 knockout samples were subjected to SDS-PAGE. ab245222 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-SMARCD1 antibody [EPR23170-71] (ab245222) at 1/1000 dilution

Lane 1:
Wild-type HEK-293T (Human epithelial cell line from embryonic kidney transformed with large T antigen) whole cell lysate at 20 µg

Lane 2:
SMARCD1 knockout HEK-293T (Human epithelial cell line from embryonic kidney transformed with large T antigen) whole cell lysate at 20 µg

Lane 2:
Western blot - Human SMARCD1 knockout HEK-293T cell line (ab266458)

Lane 3:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

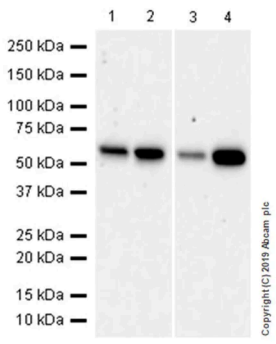
Lane 4:
NIH/3T3 (Mouse embryonic fibroblast cell line) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) at 1/10000 dilution

Predicted band size: 58 kDa

Observed band size: 58 kDa



Western blot - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

Blocking and dilution buffer: 5% NFDM/TBST.
Exposure time: 3 minutes.

All lanes:
Western blot - Anti-SMARCD1 antibody [EPR23170-71] (ab245222) at 1/1000 dilution

Lane 1:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
HEK-293T (human embryonic kidney epithelial cell) whole cell lysate at 20 µg

Lane 3:

NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 10 µg

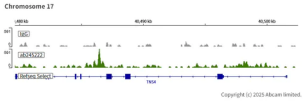
Lane 4:
Neuro-2a (mouse neuroblastoma neuroblast) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

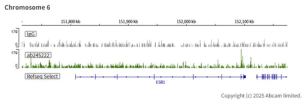
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Observed band size: 58 kDa



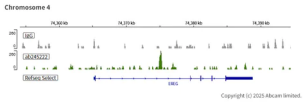
ChIC/CUT&RUN sequencing - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

ChIC/CUT&RUN was performed using a pAG-MNase at a final concentration of 700 ng/mL, 2.5 x 10^5 HeLa (human cervical adenocarcinoma epithelial cell) cells and 5 µg of ab245222 [EPR23170]. The resulting DNA was sequenced on the Illumina NovaSeq 6000 to a depth of 10 million reads.
The negative IgG control ab172730 is also shown.
The University of Geneva owns patents relevant to ChIC (Chromatin Immuno-Cleavage) methods.



ChIC/CUT&RUN sequencing - Anti-SMARCD1 antibody [EPR23170-71] (ab245222)

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