abcam

ab259973

Anti-KMT3C / SMYD2 antibody [EPR24071-25]

Recombinant | RabMAb | 20ul selling size

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	EPR24071-25
Purification technique	Affinity purification Protein A
Concentration	0.591 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Species	Rat

Dilution info	1/50
Notes	-

Species	Human
Dilution info	1/50
Notes	-

IP

Tested

Species	Mouse
Dilution info	1/30
Notes	-

Expected

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

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000

Notes	-

Species	Human
Dilution info	1/1000
Notes	-

IHC-P

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Rat
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Target data

See full target information SMYD2

Function Protein-lysine N-methyltransferase that methylates both histones and non-histone proteins, including p53/TP53 and RB1. Specifically trimethylates histone H3 'Lys-4' (H3K4me3) in vivo. The activity requires interaction with HSP90alpha. Shows even higher methyltransferase activity on p53/TP53. Monomethylates 'Lys-370' of

p53/TP53, leading to decreased DNA-binding activity and subsequent transcriptional regulation activity of p53/TP53. Monomethylates RB1 at 'Lys-860'.

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	KMT3C also known as SMYD2 is a lysine methyltransferase enzyme that possesses a unique SET domain responsible for catalyzing the methylation of lysine residues on histone and non-histone proteins. The enzyme has a molecular mass of approximately 52 kDa. SMYD2 shows expression in various tissues including heart skeletal muscle and also liver. It methylates histone H3 on lysine 36 (H3K36) and several non-histone proteins influencing gene expression regulation and protein function.

Biological function summary	KMT3C/SMYD2 plays important roles in gene regulation and cellular processes. It functions as a part of a protein complex affecting transcriptional activation and repression via chromatin remodeling. The methylation activity of SMYD2 extends to p53 an important tumor suppressor linking it to the regulation of cell cycle and apoptosis. This enzymatic activity impacts cellular growth and differentiation interfacing with the larger network of cellular gene expression control and protein function modulation.
Pathways	Research shows KMT3C/SMYD2 being active in the p53 and AKT signaling pathways fundamental to cell survival proliferation and apoptosis. In the context of the p53 pathway SMYD2 methylates p53 which may impact its tumor suppressor functions. SMYD2 also interacts with proteins like RB1 and HDAC1 integrating into broader cell regulatory networks. These interactions facilitate SMYD2's influence on pathways that govern important cellular processes such as growth and DNA damage response.
Associated diseases and disorders	Mutations and overexpression of KMT3C/SMYD2 associate with various cancers including breast and esophageal cancer. In the case of breast cancer SMYD2 modulates p53 and RB1 activity contributing to tumorigenesis. Furthermore its interaction with HDAC1 connects it with epigenetic dysregulation seen in cancer progression. Altered activity or expression of SMYD2 disrupts normal cellular function providing a link between its biological activity and oncogenic processes.

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

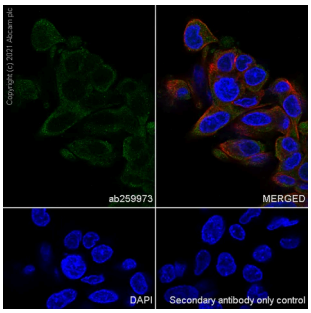
We do not recommend this combination. It is not covered by our product promise.

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.

10 product images

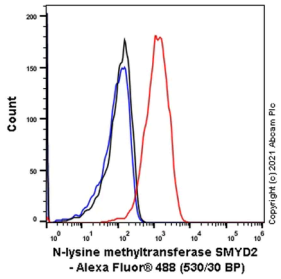


Immunocytochemistry/ Immunofluorescence - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C / SMYD2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-KMT3C / SMYD2 antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HepG2 cells labelling KMT3C/SMYD2 with ab259973 at 1/50 (11.82 µg/ml) dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing mainly cytoplasmic staining in HepG2 cells is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).

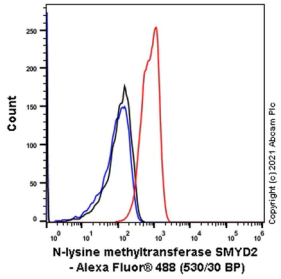
Secondary antibody only control: Secondary antibody is ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C / SMYD2 Flow Cytometry (Intracellular) staining using rabbit Anti-KMT3C / SMYD2 antibody

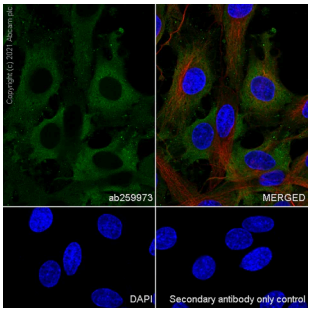
Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HepG2 (human hepatocellular carcinoma epithelial cell) cells labelling KMT3C/SMYD2 with ab259973 at 1/500 dilution (0.1µg)/ (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled 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.



Flow Cytometry (Intracellular) - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C / SMYD2 Flow Cytometry (Intracellular) staining using rabbit Anti-KMT3C / SMYD2 antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized NIH/3T3 (Mouse embryonic fibroblast) cells labelling KMT3C/SMYD2 with ab259973 at 1/500 dilution (0.1µg)/ (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.

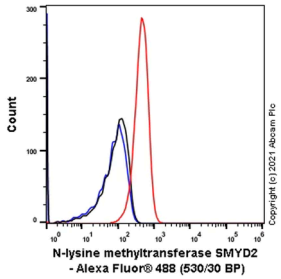


Immunocytochemistry/ Immunofluorescence - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C / SMYD2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-KMT3C / SMYD2 antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized C6 cells labelling KMT3C/SMYD2 with ab259973 at 1/50 (11.82 µg/ml) dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing mainly cytoplasmic staining in C6 cells is observed.
ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).

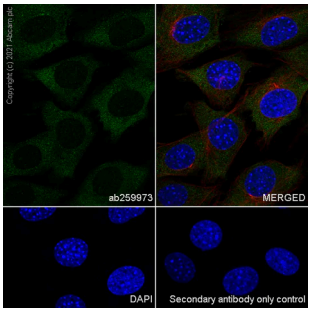
Secondary antibody only control: Secondary antibody is ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C / SMYD2 Flow Cytometry (Intracellular) staining using rabbit Anti-KMT3C / SMYD2 antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized C6 (Rat glial tumor glial cell) cells labelling KMT3C/SMYD2 with ab259973 at 1/500 dilution (0.1µg)/ (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.

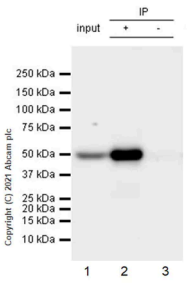


Immunocytochemistry/ Immunofluorescence - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C / SMYD2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-KMT3C / SMYD2 antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized NIH/3T3 cells labelling KMT3C/SMYD2 with ab259973 at 1/50 (11.82 µg/ml) dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing mainly cytoplasmic staining in NIH/3T3 cells is observed.
ab195889 Anti-alpha Tubulin mouse monoclonal antibody - 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 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1/1000 dilution.



Immunoprecipitation - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C/SMYD2 was immunoprecipitated from 0.35 mg NIH/3T3 (mouse embryonic fibroblast) whole cell lysate 10 ug with ab259973 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab259973 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.
Lane 1: NIH/3T3 (mouse embryonic fibroblast) whole cell lysate 10 ug

Lane 2: ab259973 IP in NIH/3T3 whole cell lysate

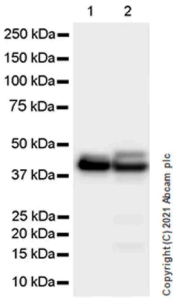
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab259973 in NIH/3T3 whole cell lysate

Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 15 seconds

All lanes:
Immunoprecipitation - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

Predicted band size: 49 kDa



Western blot - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C / SMYD2 Western blot staining using rabbit Anti-KMT3C / SMYD2 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID: 28588028)

Exposure time: 1 second

All lanes:
Western blot - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973) at 1/1000 dilution

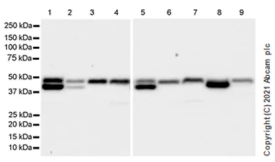
Lane 1:
Human brain tissue lysate at 20 µg

Lane 2:
Human heart tissue lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 49 kDa



Western blot - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C / SMYD2 Western blot staining using rabbit Anti-KMT3C / SMYD2 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID: 29487338)

Exposure time: Lanes 1-4: 37 seconds; Lanes 5-9: 15 seconds.
All lanes:
Western blot - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973) at 1/1000 dilution

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

Lane 2:
HepG2 (human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
U-2 OS (human bone osteosarcoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 5:
SH-SY5Y (human neuroblastoma epithelial cell) whole cell lysate at 20 µg

Lane 6:
Jurkat (human T cell leukemia cell line from peripheral blood) whole cell lysate at 20 µg

Lane 7:
NIH/3T3 (mouse embryonic fibroblast) whole cell lysate at 20 µg

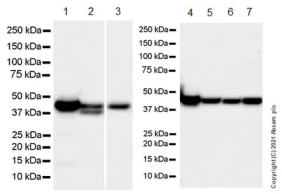
Lane 8:
C6 (rat glial tumor glial cell) whole cell lysate at 20 µg

Lane 9:
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

Predicted band size: 49 kDa



Western blot - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973)

KMT3C / SMYD2 Western blot staining using rabbit Anti-KMT3C / SMYD2 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID: 22241783)

Exposure time: 8 seconds

All lanes:
Western blot - Anti-KMT3C / SMYD2 antibody [EPR24071-25] (ab259973) at 1/1000 dilution

Lane 1:
Mouse brain tissue lysate at 20 µg

Lane 2:
Mouse heart tissue lysate at 20 µg

Lane 3:
Mouse spleen tissue lysate at 20 µg

Lane 4:
Rat brain tissue lysate at 20 µg

Lane 5:
Rat heart tissue lysate at 20 µg

Lane 6:
Rat kidney tissue lysate at 20 µg

Lane 7:
Rat spleen tissue lysate at 20 µg

Secondary

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

Predicted band size: 49 kDa

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