abcam

ab109451

Anti-PRMT5 antibody [EPR5772]

Anti-PRMT5 antibody [EPR5772] (ab109451) is a rabbit monoclonal antibody detecting PRMT5 in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 50 publications

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	EPR5772
Purification technique	Affinity purification Protein A
Dissociation constant	6.7 x 10^{-11} M
Concentration	0.671 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/50 - 1/100
Notes	**For unpurified use at 1/100 - 1/250.** Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Human
Dilution info	1/50 - 1/100
Notes	**For unpurified use at 1/100 - 1/250.** Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
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	1/10000 - 1/50000
Notes	-

Species	Rat
Dilution info	1/10000 - 1/50000
Notes	-

Species	Human
Dilution info	1/10000 - 1/50000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	For purifed use at 1/50For unpurified use at 1/100 - 1/250.

Expected

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

Flow Cyt (Intra)

Tested

Species	Human

Dilution info	1/100
Notes	For unpurified use at 1/500 - 1/1000.ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information PRMT5

Function

Arginine methyltransferase that can both catalyze the formation of omega-N monomethylarginine (MMA) and symmetrical dimethylarginine (sDMA), with a preference for the formation of MMA (PubMed:10531356, PubMed:11152681, PubMed:11747828, PubMed:12411503, PubMed:15737618, PubMed:17709427, PubMed:20159986, PubMed:20810653, PubMed:21081503, PubMed:21258366, PubMed:21917714, PubMed:22269951). Specifically mediates the symmetrical dimethylation of arginine residues in the small nuclear ribonucleoproteins Sm D1 (SNRPD1) and Sm D3 (SNRPD3); such methylation being required for the assembly and biogenesis of snRNP core particles (PubMed:11747828, PubMed:12411503, PubMed:17709427). Methylates SUPT5H and may regulate its transcriptional elongation properties (PubMed:12718890). May methylate the N-terminal region of MBD2 (PubMed:16428440). Mono- and dimethylates arginine residues of myelin basic protein (MBP) in vitro. May play a role in cytokine-activated transduction pathways. Negatively regulates cyclin E1 promoter activity and cellular proliferation. Methylates histone H2A and H4 'Arg-3' during germ cell development (By similarity). Methylates histone H3 'Arg-8', which may repress transcription (By similarity). Methylates the Piwi proteins (PIWIL1, PIWIL2 and PIWIL4), methylation of Piwi proteins being required for the interaction with Tudor domain-containing proteins and subsequent localization to the meiotic nuage (By similarity). Methylates RPS10. Attenuates EGF signaling through the MAPK1/MAPK3 pathway acting at 2 levels. First, monomethylates EGFR; this enhances EGFR 'Tyr-1197' phosphorylation and PTPN6 recruitment, eventually leading to reduced SOS1 phosphorylation (PubMed:21258366, PubMed:21917714). Second, methylates RAF1 and probably BRAF, hence destabilizing these 2 signaling proteins and reducing their catalytic activity (PubMed:21917714). Required for induction of E-selectin and VCAM-1, on the endothelial cells surface at sites of inflammation. Methylates HOXA9 (PubMed:22269951). Methylates and regulates SRGAP2 which is involved in cell migration and differentiation (PubMed:20810653). Acts as a transcriptional corepressor in CRY1-mediated repression of the core circadian component PER1 by regulating the H4R3 dimethylation at the PER1 promoter (By similarity). Methylates GM130/GOLGA2, regulating Golgi ribbon formation (PubMed:20421892). Methylates H4R3 in genes involved in glioblastomagenesis in a CHTOP- and/or TET1-dependent manner (PubMed:25284789). Symmetrically methylates POLR2A, a modification that allows the recruitment to POLR2A of proteins including

SMN1/SMN2 and SETX. This is required for resolving RNA-DNA hybrids created by RNA polymerase II, that form R-loop in transcription terminal regions, an important step in proper transcription termination (PubMed:26700805). Along with LYAR, binds the promoter of gamma-globin HBG1/HBG2 and represses its expression (PubMed:25092918). Symmetrically methylates NCL (PubMed:21081503). Methylates p53/TP53; methylation might possibly affect p53/TP53 target gene specificity (PubMed:19011621). Involved in spliceosome maturation and mRNA splicing in prophase I spermatocytes through the catalysis of the symmetrical arginine dimethylation of SNRPB (small nuclear ribonucleoprotein-associated protein) and the interaction with tudor domain-containing protein TDRD6 (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	Stable for 12 months at -20°C

Notes

What is this antibody validated in?
Anti-PRMT5 antibody [EPR5772] (ab109451) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of PRMT5?
Anti-PRMT5 [EPR5772] (ab109451) specifically detects a band for PRMT5 (UniProt: O14744) at a molecular weight of 73kDa.

Trusted by the scientific community
Anti-PRMT5 [EPR5772] (ab109451) was first used in a scientific publication in 2011 and has been cited over 50 times in peer-reviewed journals.

Other related products
We have a range of other formats of antibody clone [EPR5772] also available for your convenience: ab109451, PE - ab210437, Carrier free - ab215364, APC - ab310814, Alexa Fluor® 488 - ab310963, Alexa Fluor® 647 - ab311081, Alexa Fluor® 594 - ab311675, Alexa Fluor® 568 - ab312950, Alexa Fluor® 555 - ab313159, Alexa Fluor® 750 - ab320954

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	PRMT5 also known as Protein Arginine Methyltransferase 5 is an enzyme with molecular weight approximately 72 kDa. This protein catalyzes symmetric dimethylation of arginine residues on target proteins affecting gene expression and signal transduction. PRMT5 is expressed in various tissues with significant presence in the brain pancreas and lung. It enhances methyltransferase activity by interacting with other proteins and substrates.
Biological function summary	PRMT5 influences numerous cellular processes including RNA processing signal transduction and DNA repair. It functions as part of a protein complex often involving MEP50/WDR77 which modulates its methylating activity on histones and other proteins. This interaction dictates the cellular roles that are central to maintaining normal cellular function and regulation.
Pathways	PRMT5 operates within the Wnt/B-catenin signaling and mTOR pathways among others. As it modulates the methylation of transcription factors and regulators it contributes to transcriptional repression or activation which is important for cellular proliferation and differentiation. PRMT5 interacts with proteins such as Smad7 and cyclin D1 influencing these signaling pathways.
Associated diseases and disorders	PRMT5 shows significant associations with cancer and neurological disorders. Elevated levels of PRMT5 correlate with the progression of various cancers including lung and breast cancers making it a potential target for therapeutic intervention. Additionally PRMT5's interaction with oncogenic proteins like MYC and MDM4 highlights its role in tumorigenesis. Furthermore PRMT5 dysregulation is linked to neurodegenerative diseases impacting the protein's target specificity and exacerbating disease symptoms.

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

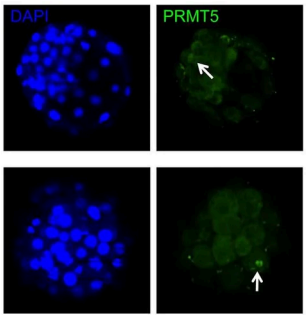
We do not recommend this combination. It is not covered by our product promise.

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.

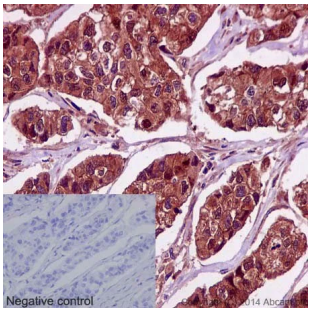
11 product images



Goyal et al PLoS One. 2013 Dec 12;8(12):e82838. doi: 10.1371/journal.pone.0082838. eCollection 2013. Fig 3. Reproduced under the Creative Commons license http://creativecommons.org/licenses/by/4.0/

Immunocytochemistry/ Immunofluorescence - Anti-PRMT5 antibody [EPR5772] (ab109451)

Expression and localization of candidate epigenetic reprogramming factors in human embryos. Human blastocysts were incubated with primary antibodies for (**Panel B**) PRMT5 (green), the nuclear DNA stained with DAPI (blue) and visualized by multi-channel confocal microscopy. Note that the expression of PRMT5 primarily localized to the ICM of human blastocysts (indicated by white arrows).



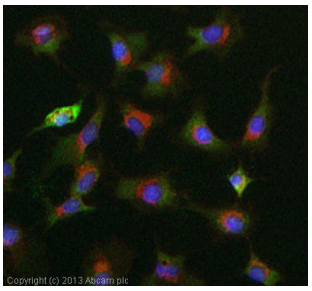
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PRMT5 antibody [EPR5772] (ab109451)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human infiltrating duct carcinoma of breast tissue sections labeling PRMT5 with purified ab109451 at 1/100.
A prediluted HRP-polymer conjugated anti-rabbit IgG was used as the secondary antibody.

Negative control using PBS instead of primary antibody.

Counterstained with hematoxylin.

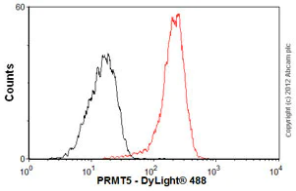
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-PRMT5 antibody [EPR5772] (ab109451)

PRMT5 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PRMT5 antibody

ICC/IF image of ab109451 (unpurified) stained HepG2 (Human liver hepatocellular carcinoma cell line) cells.
The cells were fixed with 100% methanol (5 min) and then incubated in 1% BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilize the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab109451, 1/100 dilution) overnight at +4°C. The secondary antibody (green) was ab96899, DyLight® 488 goat anti-rabbit IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43 µM.

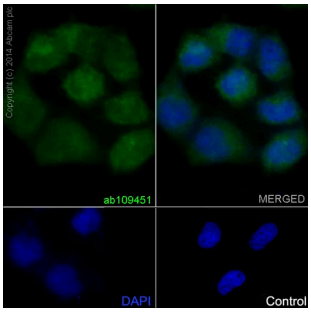


Flow Cytometry (Intracellular) - Anti-PRMT5 antibody [EPR5772] (ab109451)

PRMT5 Flow Cytometry (Intracellular) staining using rabbit Anti-PRMT5 antibody

Overlay histogram showing HeLa (Human liver hepatocellular carcinoma cell line) cells stained with ab109451 (unpurified, 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 (ab109451, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monclonal) (1µg/1x10^6 cells) used under the same conditions.

Acquisition of >5,000 events was performed.

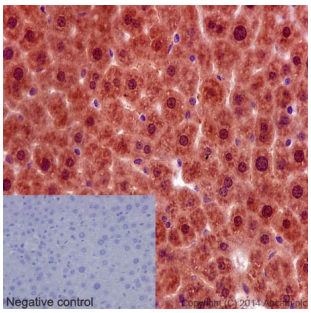


Immunocytochemistry/ Immunofluorescence - Anti-PRMT5 antibody [EPR5772] (ab109451)

PRMT5 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PRMT5 antibody

Immunocytochemistry/Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling PRMT5 (green) with purified ab109451 at 1/50.
Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/200) was used as the secondary antibody. DAPI (blue) was used as the nuclear counterstain.

Control: Secondary antibody Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/400).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PRMT5 antibody [EPR5772] (ab109451)

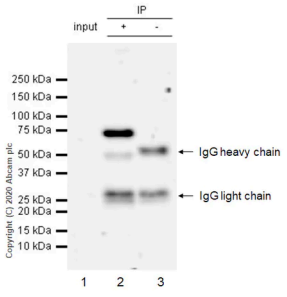
PRMT5 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PRMT5 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse liver tissue sections labeling PRMT5 with purified ab109451 at 1/100.
A prediluted HRP-polymer conjugated anti-rabbit IgG was used as the secondary antibody.

Negative control using PBS instead of primary antibody.

Counterstained with hematoxylin.

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunoprecipitation - Anti-PRMT5 antibody [EPR5772] (ab109451)

PRMT5 was immunoprecipitated from 0.35 mg Mouse brain tissue lysate 10 ug with ab109451 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab109451 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP)(ab131366) was used at 1/5000 dilution. Lane 1: Mouse brain tissue lysate 10 ug
Lane 2: ab109451 IP in Mouse brain tissue lysate

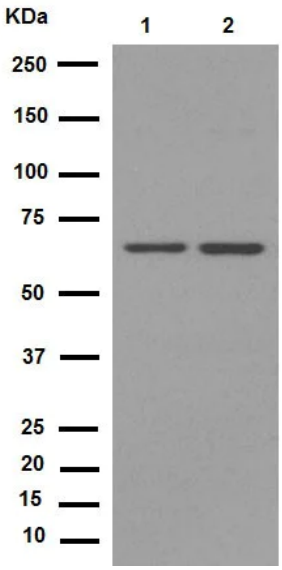
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab109451 in mouse brain tissue lysate

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

Exposure time: 100 seconds

All lanes:
Immunoprecipitation - Anti-PRMT5 antibody [EPR5772] (ab109451)

Predicted band size: 36 kDa, 73 kDa



Western blot - Anti-PRMT5 antibody [EPR5772] (ab109451)

Blocking/Dilution buffer and concentration: 5% NFDM/TBST.
All lanes:
Western blot - Anti-PRMT5 antibody [EPR5772] (ab109451) at 1/50000 dilution

Lane 1:
HEK-293 (Human epithelial cell line from embryonic kidney) cell lysate at 20 µg

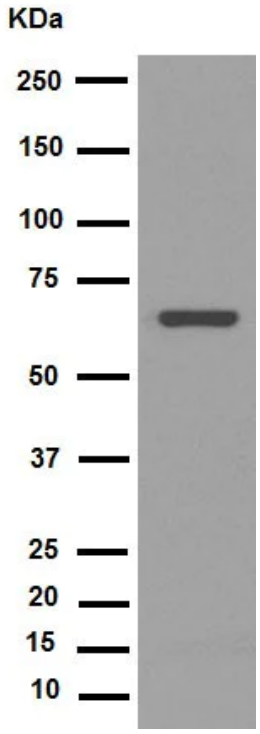
Lane 2:
HepG2 (Human liver hepatocellular carcinoma cell line) cell lysate at 20 µg

Secondary

All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 73 kDa

Observed band size: 72 kDa



Western blot - Anti-PRMT5 antibody [EPR5772] (ab109451)

Blocking/Dilution buffer and concentration: 5% NFDM/TBST.
All lanes:
Western blot - Anti-PRMT5 antibody [EPR5772] (ab109451) at 1/10000 dilution

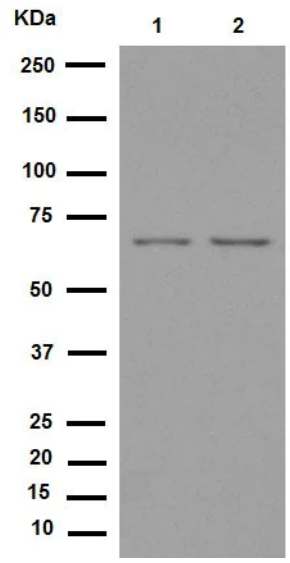
All lanes:
HeLa (Human epithelial cell line from cervix adenocarcinoma) cell lysate at 20 µg

Secondary

All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 73 kDa

Observed band size: 72 kDa



Western blot - Anti-PRMT5 antibody [EPR5772] (ab109451)

PRMT5 Western blot staining using rabbit Anti-PRMT5 antibody

Blocking/Dilution buffer and concentration: 5% NFDM/TBST.
All lanes:
Western blot - Anti-PRMT5 antibody [EPR5772] (ab109451) at 1/10000 dilution

Lane 1:
Mouse brain tissue lysate at 20 µg

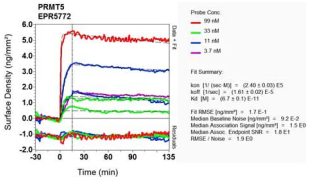
Lane 2:
Rat brain tissue lysate at 20 µg

Secondary

All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Predicted band size: 73 kDa

Observed band size: 72 kDa



OI-RD Scanning - Anti-PRMT5 antibody [EPR5772] (ab109451)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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