abcam

ab45027

Anti-MBD2 + MBD3 antibody [106B691]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human MBD2 aa 200 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link Q9UBB5
Clone number	106B691
Purification technique	Affinity purification Protein G
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	2 µg/mL
Notes	-

Predicted

Species	Mouse, Rat, Chicken, Xenopus laevis, Zebrafish
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/300
Notes	-

Predicted

Species	Mouse, Rat, Chicken, Xenopus laevis, Zebrafish
Dilution info	-
Notes	-

ICC/IF

Expected

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

Predicted

Species	Mouse, Rat, Chicken, Xenopus laevis, Zebrafish
Dilution info	-
Notes	-

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.

Predicted

Species	Mouse, Rat, Chicken, Xenopus laevis, Zebrafish
Dilution info	-
Notes	-

Target data

See full target information MBD2

Function Binds CpG islands in promoters where the DNA is methylated at position 5 of cytosine within CpG dinucleotides (PubMed:9774669). Binds hemimethylated DNA as well (PubMed:10947852, PubMed:24307175). Recruits histone deacetylases and DNA methyltransferases to chromatin (PubMed:10471499, PubMed:10947852). Acts as a component of the histone deacetylase NuRD complex which participates in the remodeling of chromatin (PubMed:16428440, PubMed:28977666). Acts as a transcriptional repressor and plays a role in gene silencing (PubMed:10471499, PubMed:10947852, PubMed:16415179). Functions as a scaffold protein, targeting GATAD2A and GATAD2B to chromatin to promote repression (PubMed:16415179). May enhance the activation of some unmethylated cAMP-responsive promoters (PubMed:12665568).

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

The theoretical molecular weight of human MBD2 (411 amino acids) is 45 kD and human MBD3 (291 amino acids) is 33 kD.

Supplementary info

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

Activity summary	MBD2 and MBD3 are proteins that belong to the methyl-CpG-binding domain (MBD) family. These proteins recognize and bind to methylated DNA aiding in the interpretation of methylation signals in the genome. MBD2 has a molecular mass of approximately 45 kDa while MBD3 is about 34 kDa. These proteins are expressed in various tissues with notable expression in the brain and embryonic tissues. Furthermore both proteins show a conserved domain that allows them to bind to methylated CpG dinucleotides effectively.
Biological function summary	MBD2 and MBD3 participate in gene silencing and chromatin remodeling. They act as part of the NuRD (nucleosome remodeling and deacetylase) complex which integrates both chromatin remodeling and histone deacetylase activities to regulate transcription. Within this complex MBD2 associates with co-repressor proteins and may directly influence transcriptional repression activities. MBD3 although structurally similar lacks strong methyl-CpG binding and may have a more regulatory role in the NuRD complex.
Pathways	MBD2 and MBD3 influence epigenetic regulatory pathways including those involved in gene expression and genomic imprinting. They interact with pathways that involve DNA methylation and histone modification. Within these pathways MBD2 and MBD3 closely work with proteins such as HDAC1 and HDAC2 which are integral to the deacetylation processes in chromatin remodeling. Their roles in these pathways are important for maintaining cellular identity and regulating developmental processes.
Associated diseases and disorders	MBD2 and MBD3 have associations with cancer and neurological disorders. In cancer MBD2 can contribute to oncogenesis by aberrantly silencing tumor suppressor genes through DNA methylation. Similarly altered expression of MBD3 has been observed in some cancers potentially impacting cell cycle regulation. Regarding neurological disorders dysregulation of MBD2 and MBD3 affects neuronal development and function linking them to developmental disorders like Rett syndrome. These relationships suggest connections with other regulatory proteins involved in epigenetic controls.

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.

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4 product images

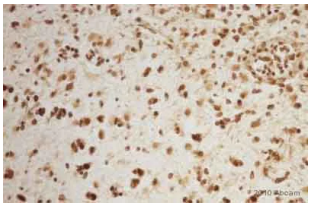


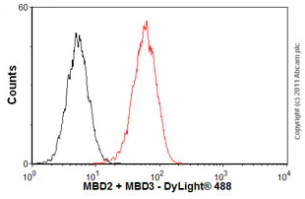
Image courtesy of an anonymous customer review.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MBD2 + MBD3 antibody [106B691] (ab45027)

MBD2 + MBD3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-MBD2 + MBD3 antibody

ab45027 at 2µg/ml staining MBD2 + MBD3 in human glioma tissue by Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections).

Tissue was fixed in paraformaldehyde and a heat mediated antigen retrieval step was performed and samples were blocked using 10% BSA. The secondary used was an HRP conjugated anti rabbit/mouse mix.



Flow Cytometry (Intracellular) - Anti-MBD2 + MBD3 antibody [106B691] (ab45027)

MBD2 + MBD3 Flow Cytometry (Intracellular) staining using mouse Anti-MBD2 + MBD3 antibody

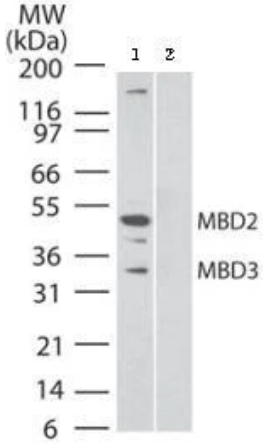
Overlay histogram showing HeLa cells stained with ab45027 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab45027, 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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MBD2 + MBD3 antibody [106B691] (ab45027)

MBD2 + MBD3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-MBD2 + MBD3 antibody

Immunohistochemistry analysis of immersion fixed paraffin-embedded sections of human placenta labeling MBD2 + MBD3 with ab45027 at 1/300 for 1 hour at room temperature followed by incubation with the Anti-Mouse IgG VisUCyte™ HRP Polymer Antibody. Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue).



Western blot - Anti-MBD2 + MBD3 antibody [106B691] (ab45027)

All lanes:
Western blot - Anti-MBD2 + MBD3 antibody [106B691] (ab45027) at 2 µg/mL

Lane 1:
HeLa cell lysate (nuclear fraction) without immunising peptide

Lane 2:
HeLa cell lysate (nuclear fraction) with immunising peptide

Predicted band size: 45 kDa

Observed band size: 160 kDa, 33 kDa, 40 kDa, 45 kDa

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