10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

MBD3 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1038c

Product Information

Application	WB, IHC-P, E
Primary Accession	O95983
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB02375
Calculated MW	32844
Antigen Region	264-291

Additional Information

Gene ID	53615
Other Names	Methyl-CpG-binding domain protein 3, Methyl-CpG-binding protein MBD3, MBD3
Target/Specificity	This MBD3 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 264-291 amino acids from the C-terminal region of human MBD3.
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	MBD3 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MBD3
Function	Acts as a component of the histone deacetylase NuRD complex which participates in the remodeling of chromatin (PubMed:12124384, PubMed:16428440, PubMed:28977666). Acts as transcriptional repressor and plays a role in gene silencing (PubMed:10947852, PubMed:18644863). Does

not bind to methylated DNA by itself (PubMed:12124384, PubMed:16428440). Binds to a lesser degree DNA containing unmethylated CpG dinucleotides (PubMed:24307175). Recruits histone deacetylases and DNA methyltransferases.

Cellular Location Nucleus. Chromosome. Note=Nuclear, in discrete foci. Detected on chromatin, at promoter regions of active genes

Background

DNA methylation, or the addition of methyl groups to cytosine bases in the dinucleotide CpG, is imperative to proper development and regulates gene expression. The methylation pattern involves the enzymatic processes of methylation and demethylation. The demethylation enzyme was recently found to be a mammalian protein, which exhibits demethylase activity associated to a methyl-CpG-binding domain (MBD). The enzyme is able to revert methylated cytosine bases to cytosines within the particular dinucleotide sequence mdCpdG by catalyzing the cleaving of the methyl group as methanol. MeCP2 and MBD1 (PCM1) are first found to repress transcription by binding specifically to methylated DNA. MBD2 and MBD4 (also known as MED1) were later found to colocalize with foci of heavily methylated satellite DNA and believed to mediate the biological functions of the methylation signal. Surprisingly, MBD3 does not bind methylated DNA both in vivo and in vitro. MBD1, MBD2, MBD3, and MBD4 are found to be expressed in somatic tissues, but the expression of MBD1 and MBD2 is reduced or absent in embryonic stem cells, which are known to be deficient in MeCP1 activity. MBD4 have homology to bacterial base excision repair DNA N-glycosylases/lyases. In some microsatellite unstable tumors MBD4 is mutated at an exonic polynucleotide tract.

References

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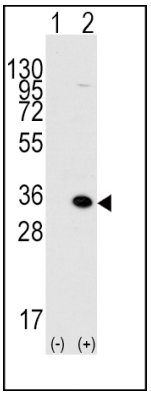
Hendrich B and Bird A. Mol Cell Biol, 18: 6538-6547(1998).
Petronzelli F, Riccio A, Markham GD, Seeholzer SH, Stoerker J, Genuardi M, Yeung AT, Matsumoto Y, Bellacosa A. J Biol Chem 275 (42): 32422-32429 (2000).
Bader S, Walker M, Harrison D. Br J Cancer 83(12): 1646-1649 (2000).

Images



Western blot analysis of MBD3 (arrow) using rabbit polyclonal MBD3 Antibody (C-term) (Cat.#AP1038c).293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the MBD3 gene (Lane 2) (Origene Technologies).

Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.