

Monoclonal Antibody to Methyl-CpG-binding Domain 1 (MBD1)



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Monoclonal Antibody to Methyl-CpG-binding Domain 1 (MBD1)

Catalog No : IMG-306
Formulation : 0.1 mg in 0.2 ml PBS containing 0.2% gelatin and 0.05% sodium azide. Sodium azide is highly toxic
Isotype : Mouse IgG1
Clone : 100B272.1.
Purification : Protein G Chromatography
Species React : Human
Host : Mouse

Application

Western blot analysis: 2-4 ug/ml

Storage

This antibody is supplied as protein g purified protein. Store at 4°C, stable at 4°C for 6 months. For long-term storage, store at -20°C.

Recommended Positive Control: HeLa

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) (1). The enzyme is able to revert methylated cytosine bases to cytosines within the particular dinucleotide sequence mdCpG 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 (2). 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 (3). In some microsatellite unstable tumors MBD4 is mutated at an exonic polynucleotide tract (4).

Antigen

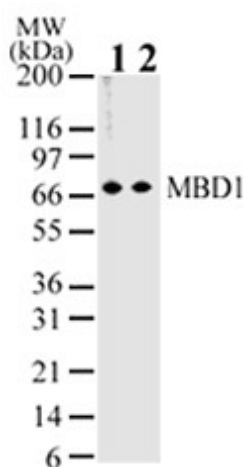
This antibody was generated by immunizing mice with a synthetic peptide corresponding to amino acids 391-405 (SESEDGAGSPPPYRR) of human MBD1; GenBank no [ref|NP_056671.2|](http://www.ncbi.nlm.nih.gov/nuccore/ref|NP_056671.2)

Application Notes

This monoclonal antibody can be used for detection of MBD1, isoform 1, a 605 amino acid protein. In HeLa, a 70 kDa band is observed.

Genebank Info (Protein)

NP_056669



Western blot analysis of MBD1 in HeLa cell lysate using IMG-306 at 2 ug/ml (lane 1) and 1 ug/ml (lane 2).

Related Products

- 20101 [Goat Anti-Mouse Ig HRP Conjugate]
- IMG-5019A-1 [Monoclonal Antibody to GAPDH - Loading Control]
- IMG-5019A-2 [Monoclonal Antibody to GAPDH - Loading Control]
- 40161 [HeLa cell line lysate (cervical carcinoma)]

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Reference

1. Bhattacharya SK, Ramchandani S, Cervoni N, Szyf. M. *Nature*, 397 (6720):579-583 1999.
2. Hendrich B and Bird A. *Mol Cell Biol*, 18: 6538-6547 (1998).
3. 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).
4. Bader S, Walker M, Harrison D. *Br J Cancer* 83(12): 1646-1649(2000).

Product Citations

1. **The Methyl-CpG Binding Protein MBD1 Interacts with the p150 Subunit of Chromatin Assembly Factor 1.** Brian E. Reese, Kurtis E. Bachman, Stephen B. Baylin, and Michael R. Rountree. *Mol. Cell. Biol.* 23: 3226-3236 (2003).
2. Role of the Polycomb Repressive Complex 2 in Acute Promyelocytic Leukemia. Raffaella Villa, Diego Pasini, Arantxa Gutierrez, Lluís Morey, Manuela Occhionorelli, et al. *Cancer Cell*, 11 (6): 513-525 (2007).

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