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Polyclonal Antibody to MBD4 - Purified

Catalog No.: SP7111P

Quantity: 0.1 mg

Concentration: 0.5 mg/ml

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) (4). 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 (3). 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 (2). In some microsatellite unstable tumors MBD4 is mutated at an exonic polynucleotide tract (1).

Host: Rabbit

Immunogen: Mixture of synthetic peptides (aa 268-282 and 337-352 of hMBD4).

Format:
State: Liquid Ig fraction
Purification: Protein G Chromatography
Buffer System: PBS containing 0.02% sodium azide

Applications:
Western blot (2 µg/ml).
IF/ICC: 32-64 µg/ml (see Product citation 1).
IHC: 64 µg/ml (see Product citation 1).
Recommended Positive Control: HL60 (a 64 kDa band is observed).
Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity:
This antibody is specific for MBD4.
Species: Human.
Other species not tested.

Storage: Store the antibody at 2 - 8 °C up to six months or (in aliquots) at -20 °C for longer. Avoid repeated freezing and thawing.
Shelf life: one year from despatch.

General Readings:

1. Bader S, Walker M, Harrison D. Most microsatellite unstable sporadic colorectal carcinomas carry MBD4 mutations. Br J Cancer 83(12): 1646-1649 (2000).
2. Bhattacharya SK, Ramchandani S, Cervoni N, Szyf M. A mammalian protein with specific demethylase activity for mCpG DNA. Nature, 397 (6720):579-583 1999.
3. Hendrich B and Bird A. Identification and characterization of a family of mammalian methyl-CpG binding proteins. Mol Cell Biol, 18: 6538-6547 (1998).
4. 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).

Product Citations

1. THE LOCALIZATION OF A METHYL BINDING DOMAIN PROTEIN (MBD4) IN MURINE AND BOVINE OOCYTES AND PRE-IMPLANTATION EMBRYOS. N. Ruddock A , B , J. Xue A , B , L. Sanchez-Partida A , B , M. Cooney A , B , N. Korfiatis A , B and M. Holland A , C . Reproduction, feritilty and development, Abstract 2005. (ICC and IHC)
2. Homologous pairing of 15q11-13 imprinted domains in brain is developmentally regulated but deficient in Rett and autism samples. Karen N. Thatcher, Sailaja Peddada, Dag H. Yasui, and Janine M. LaSalle. Hum. Mol. Genet. 14: 785-797 (2005).

Pictures:

Western blot analysis of MBD4 in HL60 cell lysate with anti-MBD4 pcAb SP7111P. A protein band of approximate molecular weight of 64 kDa was detected.