

MBD4 (E-19): sc-9405

BACKGROUND

Methylation of DNA contributes to the regulation of gene transcription in both mammalian and invertebrate systems. DNA methylation predominates on cytosine residues that are present in dinucleotide motifs consisting of a 5' cytosine followed by guanosine (CpG), and it requires the enzymatic activity of DNA methyltransferase, which results in transcriptional repression of the methylated gene. Several proteins have been identified that associate with the methyl-CpG sites, and they include methyl-CpG binding protein-1 (MBD1), MBD2, MBD3 and MeCP2. Expression of the MBD proteins is highest in somatic tissues. MBD1 binds in a context-specific manner to methyl-CpG rich domains and, in turn, mediates the transcriptional inhibition that is commonly observed with DNA methylation. Similarly, MBD2 inhibits transcription of methylated genes by associating with histone deacetylase (HDAC1) within the MeCP1 repressor complex. In addition, MBD4, which is also designated MED1, associates with the mismatch repair protein MLH1 and preferentially binds to methylated cytosine residues in mismatched base pairs. MeCP2 binds tightly to chromosomes in a methylation-dependent manner and associates with a corepressor complex containing the transcriptional repressor mSin3A and histone deacetylases.

REFERENCES

- Boyes, J. and Bird, A. 1991. DNA methylation inhibits transcription indirectly via a methyl-CpG binding protein. *Cell* 64: 1123-1134.
- Nan, X., Ng, H.H., Johnson, C.A., Laherty, C.D., Turner, B.M., Eisenman, R.N. and Bird, A. 1998. Transcriptional repression by the methyl-CpG-binding protein MeCP2 involves a histone deacetylase complex. *Nature* 393: 386-389.
- Hendrich, B. and Bird, A. 1998. Identification and characterization of a family of mammalian methyl-CpG binding proteins. *Mol. Cell. Biol.* 18: 6538-6547.
- Hendrich, B., Abbott, C., McQueen, H., Chambers, D., Cross, S. and Bird, A. 1999. Genomic structure and chromosomal mapping of the murine and human MBD1, MBD2, MBD3, and MBD4 genes. *Mamm. Genome* 10: 906-912.

CHROMOSOMAL LOCATION

Genetic locus: MBD4 (human) mapping to 3q21.3; Mbd4 (mouse) mapping to 6 E3.

SOURCE

MBD4 (E-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of MBD4 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-9405 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MBD4 (E-19) is recommended for detection of MBD4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

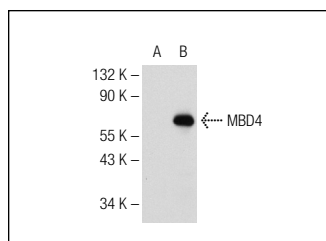
MBD4 (E-19) is also recommended for detection of MBD4 in additional species, including equine, canine and bovine.

Suitable for use as control antibody for MBD4 siRNA (h): sc-37763, MBD4 siRNA (m): sc-37764, MBD4 shRNA Plasmid (h): sc-37763-SH, MBD4 shRNA Plasmid (m): sc-37764-SH, MBD4 shRNA (h) Lentiviral Particles: sc-37763-V and MBD4 shRNA (m) Lentiviral Particles: sc-37764-V.

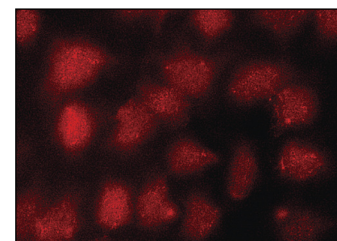
Molecular Weight of MBD4: 66 kDa.

Positive Controls: MBD4 (m): 293T Lysate: sc-121541 or NIH/3T3 whole cell lysate: sc-2210.

DATA



MBD4 (E-19): sc-9405. Western blot analysis of MBD4 expression in non-transfected: sc-117752 (A) and mouse MBD4 transfected: sc-121541 (B) 293T whole cell lysates.



MBD4 (E-19): sc-9405. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear localization.

SELECT PRODUCT CITATIONS

- Jin, S.G., Tsark, W., Szabó, P.E. and Pfeifer, G.P. 2008. Haploid male germ cell- and oocyte-specific MBD311 and MBD312 genes are dispensable for early development, fertility, and zygotic DNA demethylation in the mouse. *Dev. Dyn.* 237: 3435-3443.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.



Try **MBD4 (D-6): sc-271530** or **MBD4 (A-8): sc-365974**, our highly recommended monoclonal alternatives to MBD4 (E-19).