

MBD1 (M-254): sc-10751

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 guanine (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; 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.

CHROMOSOMAL LOCATION

Genetic locus: MBD1 (human) mapping to 18q21.1; Mbd1 (mouse) mapping to 18 E2.

SOURCE

MBD1 (M-254) is a rabbit polyclonal antibody raised against amino acids 383-636 mapping near the C-terminus of MBD1 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.

APPLICATIONS

MBD1 (M-254) is recommended for detection of MBD1 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MBD1 siRNA (h): sc-35863, MBD1 siRNA (m): sc-35864, MBD1 shRNA Plasmid (h): sc-35863-SH, MBD1 shRNA Plasmid (m): sc-35864-SH, MBD1 shRNA (h) Lentiviral Particles: sc-35863-V and MBD1 shRNA (m) Lentiviral Particles: sc-35864-V.

Molecular Weight of MBD1: 80 kDa.

Positive Controls: MBD1 (m): 293T Lysate: sc-121538, KNRK nuclear extract: sc-2141 or MM-142 nuclear extract: sc-2139.

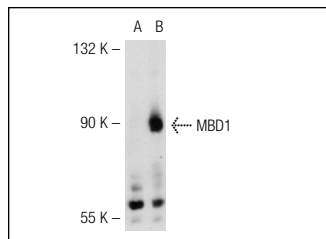
RESEARCH USE

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

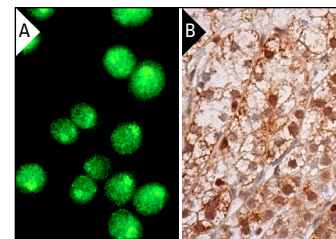
STORAGE

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

DATA



MBD1 (M-254): sc-10751. Western blot analysis of MBD1 expression in non-transfected: sc-117752 (A) and mouse MBD1 transfected: sc-121538 (B) 293T whole cell lysates.



MBD1 (M-254): sc-10751. Immunofluorescence staining of methanol-fixed KNRK cells showing nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing nuclear and cytoplasmic staining of glandular cells (B).

SELECT PRODUCT CITATIONS

- Koizume, S., et al. 2002. Heterogeneity in the modification and involvement of chromatin components of the CpG island of the silenced human CDH1 gene in cancer cells. *Nucleic Acids Res.* 30: 4770-4780.
- Cassel, S., et al. 2006. Fluoxetine and cocaine induce the epigenetic factors MeCP2 and MBD1 in adult rat brain. *Mol. Pharmacol.* 70: 487-492.
- Kobayakawa, S., et al. 2007. Dynamic changes in the epigenomic state and nuclear organization of differentiating mouse embryonic stem cells. *Genes Cells* 12: 447-460.
- Allan, A.M., et al. 2008. The loss of methyl-CpG binding protein 1 leads to autism-like behavioral deficits. *Hum. Mol. Genet.* 17: 2047-2057.
- He, N., et al. 2008. Epigenetic inhibition of nuclear receptor small heterodimer partner is associated with and regulates hepatocellular carcinoma growth. *Gastroenterology* 134: 793-802.
- Li, X., et al. 2008. Epigenetic regulation of the stem cell mitogen F-2 by Mbd1 in adult neural stem/progenitor cells. *J. Biol. Chem.* 283: 27644-27652.
- McGough, J.M., et al. 2008. DNA methylation represses IFN-γ-induced and signal transducer and activator of transcription 1-mediated IFN regulatory factor 8 activation in colon carcinoma cells. *Mol. Cancer Res.* 6: 1841-1851.
- Clouaire, T., et al. 2010. Recruitment of MBD1 to target genes requires sequence-specific interaction of the MBD domain with methylated DNA. *Nucleic Acids Res.* 38: 4620-4634.

MONOS
Satisfaction
Guaranteed

Try **MBD1 (B-5): sc-25261** or **MBD1 (A-5): sc-55473**, our highly recommended monoclonal alternatives to MBD1 (M-254).