

MBD5 (H-300): sc-98806

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, MBD4, MBD5 and MeCP2. MBD5 is a 1,494 amino acid protein containing one MBD domain and one PWWP domain. Localized to the nucleus, MBD5 is expressed in skeletal muscle, kidney, heart, kidney, liver, pancreas and placenta. Mutations in the gene that encodes MBD5 have been found to cause mental retardation autosomal dominant type 1 (MRD1), which is characterized by sub-average general intellectual functioning manifested during the developmental period.

REFERENCES

- Boyes, J. and Bird, A. 1991. DNA methylation inhibits transcription indirectly via a methyl-CpG binding protein. *Cell* 64: 1123-1134.
- 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.
- Ohki, I., Shimotake, N., Fujita, N., Nakao, M. and Shirakawa, M. 1999. Solution structure of the methyl-CpG-binding domain of the methylation-dependent transcriptional repressor MBD1. *EMBO J.* 18: 6653-6661.
- Nagase, T., Kikuno, R., Ishikawa, K., Hirose, M. and Ohara, O. 2000. Prediction of the coding sequences of unidentified human genes. XVII. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. *DNA Res.* 7: 143-150.
- Roloff, T.C., Ropers, H.H. and Nuber, U.A. 2003. Comparative study of methyl-CpG-binding domain proteins. *BMC Genomics* 4: 1.
- Wagenstaller, J., Spranger, S., Lorenz-Depiereux, B., Kazmierczak, B., Nathrath, M., Wahl, D., Heye, B., Glaser, D., Liebscher, V., Meitinger, T. and Strom, T.M. 2007. Copy-number variations measured by single-nucleotide-polymorphism oligonucleotide arrays in patients with mental retardation. *Am. J. Hum. Genet.* 81: 768-779.

CHROMOSOMAL LOCATION

Genetic locus: MBD5 (human) mapping to 2q23.1; Mbd5 (mouse) mapping to 2 C1.1.

SOURCE

MBD5 (H-300) is a rabbit polyclonal antibody raised against amino acids 601-899 mapping within an internal region of MBD5 of human origin.

PRODUCT

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

APPLICATIONS

MBD5 (H-300) is recommended for detection of MBD5 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

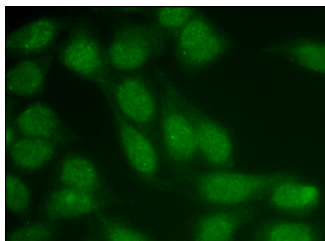
Suitable for use as control antibody for MBD5 siRNA (h): sc-94756, MBD5 siRNA (m): sc-149305, MBD5 shRNA Plasmid (h): sc-94756-SH, MBD5 shRNA Plasmid (m): sc-149305-SH, MBD5 shRNA (h) Lentiviral Particles: sc-94756-V and MBD5 shRNA (m) Lentiviral Particles: sc-149305-V.

Molecular Weight of MBD5: 160 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



MBD5 (H-300): sc-98806. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear and cytoplasmic localization. Kindly provided by Yang Xiang, Ph.D., Division of Newborn Medicine, Boston Children's Hospital, Cell Biology Department, Harvard Medical School.

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.