SANTA CRUZ BIOTECHNOLOGY, INC.

MBD4 (D-6): sc-271530

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

1. Boyes, J. and Bird, A. 1991. DNA methylation inhibits transcription indirectly via a methyl-CpG binding protein. Cell 64: 1123-1134.
2. Nan, X., et al. 1998. Transcriptional repression by the methyl-CpG-binding protein MeCP2 involves a histone deacetylase complex. Nature 393: 386-389.

CHROMOSOMAL LOCATION

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

SOURCE

MBD4 (D-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 515-555 within an internal region of MBD4 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MBD4 (D-6) is available conjugated to agarose (sc-271530 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-271530 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271530 PE), fluorescein (sc-271530 FITC), Alexa Fluor® 488 (sc-271530 AF488), Alexa Fluor® 546 (sc-271530 AF546), Alexa Fluor® 594 (sc-271530 AF594) or Alexa Fluor® 647 (sc-271530 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271530 AF680) or Alexa Fluor® 790 (sc-271530 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271530 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

MBD4 (D-6) is recommended for detection of MBD4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

MBD4 (D-6) is also recommended for detection of MBD4 in additional species, including 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.

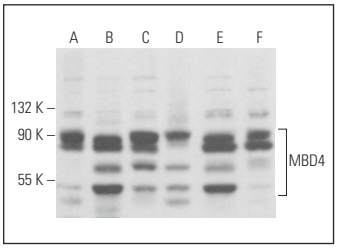
Molecular Weight of MBD4: 66 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, MCF7 whole cell lysate: sc-2206 or A-431 whole cell lysate: sc-2201.

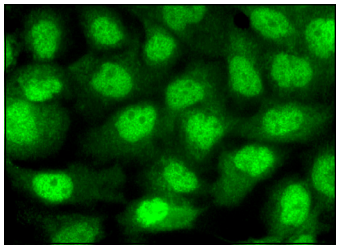
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



MBD4 (D-6): sc-271530. Western blot analysis of MBD4 expression in HeLa nuclear extract (**A**) and K-562 (**B**), MCF7 (**C**), SK-BR-3 (**D**), HL-60 (**E**) and A-431 (**F**) whole cell lysates.



MBD4 (D-6): sc-271530. Immunofluorescence staining of formalin-fixed A-431 cells showing nuclear and cytoplasmic localization.

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.