SANTA CRUZ BIOTECHNOLOGY, INC.

MBD2 (D-15): sc-12444

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; they include methyl-CpG binding protein 1 (MBD1), MBD2, MBD3, MBD4 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. 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: MBD2 (human) mapping to 18q21.2; Mbd2 (mouse) mapping to 18 E2.

SOURCE

MBD2 (D-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MBD2 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.

Blocking peptide available for competition studies, sc-12444 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MBD2 (D-15) is recommended for detection of MBD2 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 MBD2 siRNA (h): sc-35865, MBD2 siRNA (m): sc-35866, MBD2 shRNA Plasmid (h): sc-35865-SH, MBD2 shRNA Plasmid (m): sc-35866-SH, MBD2 shRNA (h) Lentiviral Particles: sc-35865-V and MBD2 shRNA (m) Lentiviral Particles: sc-35866-V.

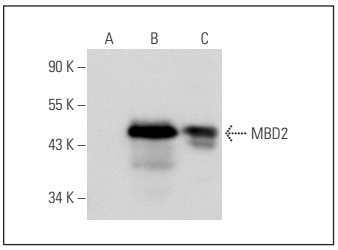
Molecular Weight of MBD2: 47 kDa.

Positive Controls: MBD2 (h): 293T Lysate: sc-115236, A-431 nuclear extract: sc-2122 or Jurkat whole cell lysate: sc-2204.

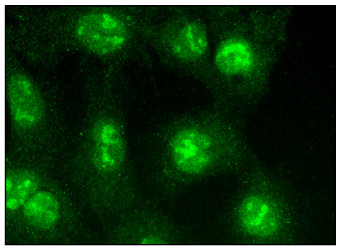
STORAGE

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

DATA



MBD2 (D-15): sc-12444. Western blot analysis of MBD2 expression in non-transfected 293T: sc-117752 (**A**), human MBD2 transfected 293T: sc-115236 (**B**) and Jurkat (**C**) whole cell lysates.



MBD2 (D-15): sc-12444. Immunofluorescence staining of formalin-fixed HepG2 cells showing nucleolar and nuclear localization.

SELECT PRODUCT CITATIONS

1. Magdinier, F. and Wolffe, A.P. 2001. Selective association of the methyl-CpG binding protein MBD2 with the silent p14/p16 locus in human neoplasia. Proc. Natl. Acad. Sci. USA 98: 4990-4995.
2. Unoki, M., et al. 2003. Methylation at CpG islands in intron 1 of Egr-2 confers enhancer-like activity. FEBS Lett. 554: 67-72.
3. Helbling Chadwick, L., et al. 2009. The Mi-2/NuRD complex associates with pericentromeric heterochromatin during S phase in rapidly proliferating lymphoid cells. Chromosoma 118: 445-457.
4. Cui, S., et al. 2011. Nuclear receptors TR2 and TR4 recruit multiple epigenetic transcriptional corepressors that associate specifically with the embryonic β-type globin promoters in differentiated adult erythroid cells. Mol. Cell. Biol. 31: 3298-3311.
5. Mian, O.Y., et al. 2011. Methyl-binding domain protein 2-dependent proliferation and survival of breast cancer cells. Mol. Cancer Res. 9: 1152-1162.
6. Culver-Cochran, A.E. and Chadwick, B.P. 2013. Loss of WSTF results in spontaneous fluctuations of heterochromatin formation and resolution, combined with substantial changes to gene expression. BMC genomics 14: 740.

RESEARCH USE

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