SANTA CRUZ BIOTECHNOLOGY, INC.

MBD1 (G-18): sc-9395

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.

CHROMOSOMAL LOCATION

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

SOURCE

MBD1 (G-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of MBD1 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-9395 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MBD1 (G-18) 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), 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).

MBD1 (G-18) is also recommended for detection of MBD1 in additional species, including equine, canine, bovine and porcine.

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.

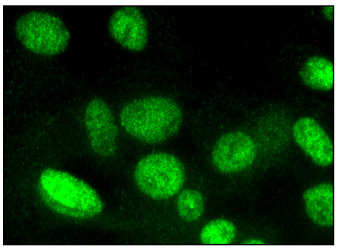
Molecular Weight of MBD1: 80 kDa.

Positive Controls: A-431 nuclear extract: sc-2122, KNRK nuclear extract: sc-2141 or MM-142 nuclear extract: sc-2139.

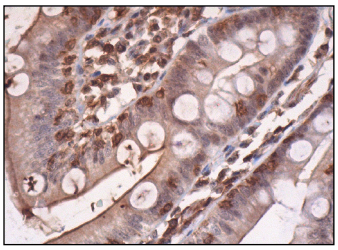
STORAGE

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

DATA



MBD1 (G-18): sc-9395. Immunofluorescence staining of formalin-fixed HepG2 cells showing nuclear localization.



MBD1 (G-18): sc-9395. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing nuclear and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Chadwick, B.P., et al. 2002. Cell cycle-dependent localization of macroH2A in chromatin of the inactive X chromosome. J. Cell Biol. 157: 1113-1123.
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 Mi2/NuRD complex associates with pericentromeric heterochromatin during S phase in rapidly proliferating lymphoid cells. Chromosoma 118: 445-457.
4. Kim, J.W., et al. 2011. Replicative activity of hepatitis B virus is negatively associated with methylation of covalently closed circular DNA in advanced hepatitis B virus infection. Intervirology 54: 316-325.
5. 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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.