SANTA CRUZ BIOTECHNOLOGY, INC.

MBD2 (C-11): sc-514062

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.

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: MBD2 (human) mapping to 18q21.2; Mbd2 (mouse) mapping to 18 E2.

SOURCE

MBD2 (C-11) is a mouse monoclonal antibody raised against amino acids 1-70 mapping at the N-terminus of MBD2 of human 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.

MBD2 (C-11) is available conjugated to agarose (sc-514062 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-514062 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514062 PE), fluorescein (sc-514062 FITC), Alexa Fluor® 488 (sc-514062 AF488), Alexa Fluor® 546 (sc-514062 AF546), Alexa Fluor® 594 (sc-514062 AF594) or Alexa Fluor® 647 (sc-514062 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514062 AF680) or Alexa Fluor® 790 (sc-514062 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

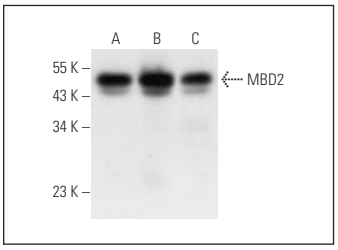
MBD2 (C-11) is recommended for detection of MBD2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 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.

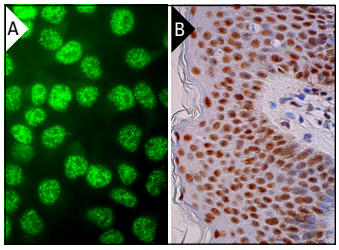
Molecular Weight of MBD2: 47 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, A-431 nuclear extract: sc-2122 or HeLa nuclear extract: sc-2120.

DATA



MBD2 (C-11): sc-514062. Western blot analysis of MBD2 expression in A-431 (**A**), Jurkat (**B**) and HeLa (**C**) nuclear extracts.



MBD2 (C-11): sc-514062. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing nuclear staining of keratinocytes, fibroblasts and melanocytes (**B**).

SELECT PRODUCT CITATIONS

1. Vinogradova, E.V., et al. 2020. An activity-guided map of electrophile-cysteine interactions in primary human T cells. Cell 182: 1009-1026.e29.
2. Zhu, G.Q., et al. 2022. Targeting HNRNPM inhibits cancer stemness and enhances antitumor immunity in Wnt-activated hepatocellular carcinoma. Cell. Mol. Gastroenterol. Hepatol. 13: 1413-1447.
3. Dhat, R., et al. 2023. Epigenetic modifier alpha-ketoglutarate modulates aberrant gene body methylation and hydroxymethylation marks in diabetic heart. Epigenetics Chromatin 16: 12.
4. Khan, M., et al. 2023. Mechanism of antitumor effects of saffron in human prostate cancer cells. Nutrients 16: 114.

STORAGE

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