SANTA CRUZ BIOTECHNOLOGY, INC.

MeCP2 (G-6): sc-137070

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: MECP2 (human) mapping to Xq28; Mecp2 (mouse) mapping to X A7.3.

SOURCE

MeCP2 (G-6) is a mouse monoclonal antibody raised against amino acids 187-486 mapping near the C-terminus of MeCP2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-137070 X, 200 µg/0.1 ml.

APPLICATIONS

MeCP2 (G-6) is recommended for detection of MeCP2 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 MeCP2 siRNA (h): sc-35892, MeCP2 siRNA (m): sc-35893, MeCP2 shRNA Plasmid (h): sc-35892-SH, MeCP2 shRNA Plasmid (m): sc-35893-SH, MeCP2 shRNA (h) Lentiviral Particles: sc-35892-V and MeCP2 shRNA (m) Lentiviral Particles: sc-35893-V.

MeCP2 (G-6) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight (predicted) of MeCP2: 53 kDa.

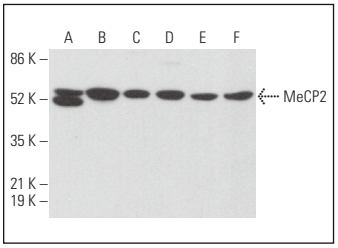
Molecular Weight (observed) of MeCP2: 55/75 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Hep G2 cell lysate: sc-2227 or MCF7 whole cell lysate: sc-2206.

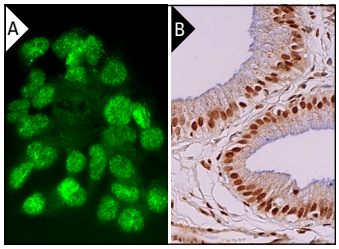
STORAGE

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

DATA



MeCP2 (G-6): sc-137070. Western blot analysis of MeCP2 expression in Jurkat (**A**), K-562 (**B**), MCF7 (**C**), HeLa (**D**), NIH/3T3 (**E**) and Hep G2 (**F**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



MeCP2 (G-6): sc-137070. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing nuclear staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Okabe, Y., et al. 2012. Alterations of gene expression and glutamate clearance in astrocytes derived from an MeCP2-null mouse model of Rett syndrome. PLoS ONE 7: e35354.
2. Peregud, D.I., et al. 2015. Elevation of BDNF exon I-specific transcripts in the frontal cortex and midbrain of rat during spontaneous morphine withdrawal is accompanied by enhanced pCreb1 occupancy at the corresponding promoter. Neurochem. Res. 40: 130-138.
3. Sharma, N.D., et al. 2019. Epigenetic silencing of SOCS5 potentiates JAK-Stat signaling and progression of T-cell acute lymphoblastic leukemia. Cancer Sci. 110: 1931-1946.
4. Liao, C.G., et al. 2022. Active demethylation upregulates CD147 expression promoting non-small cell lung cancer invasion and metastasis. Oncogene 41: 1780-1794.
5. Lee, S., et al. 2022. Dysfunction of striatal MeCP2 is associated with cognitive decline in a mouse model of Alzheimer's disease. Theranostics 12: 1404-1418.
6. Phan, V., et al. 2023. Molecular mechanisms in chloroquine-exposed muscle cells elucidated by combined proteomic and microscopic studies. Neuropathol. Appl. Neurobiol. 49: e12877.
7. Cho, H.Y., et al. 2024. Magnetic nanoparticle-assisted non-viral CRISPR-Cas9 for enhanced genome editing to treat Rett syndrome. Adv. Sci. 11: e2306432.
8. Głombik, K., et al. 2024. Contribution of changes in the orexin system and energy sensors in the brain in depressive disorder-a study in an animal model. Pharmacol. Rep. 76: 51-71.

RESEARCH USE

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