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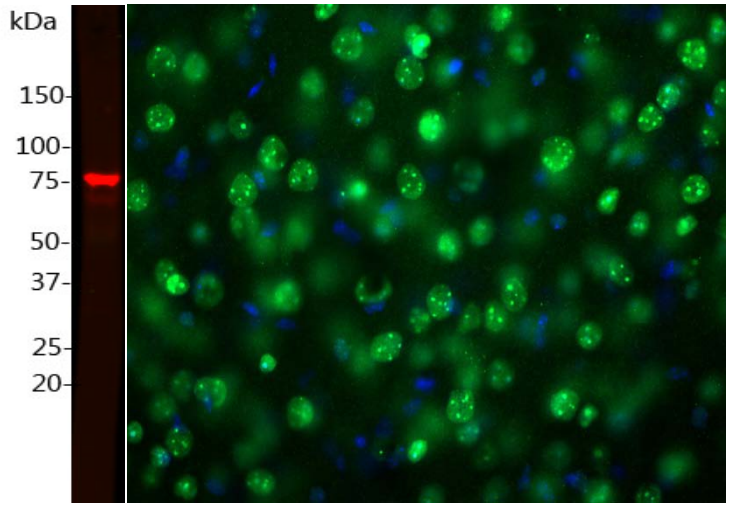
Catalogue RPCA-MeCP2: Rabbit Polyclonal Antibody to MeCP2 (Methyl-CpG Binding Protein 2)

The Immunogen: Methyl-CpG Binding Protein 2 (MeCP2) is a nuclear protein that is found to bind to symmetrical methylated CpG dinucleotide sequences. It is a transcriptional modulator that can alter gene expression epigenetically via binding to methylated DNA. It is involved not only in transcriptional silencing, but also in transcriptional activation, chromatin remodeling, and RNA splicing. *Mecp2* is a X-chromosome-linked gene, highly expressed in neurons. The mutations of *Mecp2* are linked to Rett syndrome (RTT) (2), which is a neurodevelopmental, autistic disorder that affects mainly females. Studies show that even the loss of a specific phosphorylation site of MeCP2 (e.g., S80, S421, and S424) disturbs normal maturation of the mammalian brain. Neuronal activity has been reported to trigger phosphorylation of MeCP2 at S421 *in vitro* and *in vivo*, which was further postulated to regulate activity-dependent gene transcription and neuronal spine maturation (3) (4). Mutation of the S80 phosphorylation site reduces MeCP2 association with chromatin at several euchromatic gene promoters, alters transcription of several genes that are potentially important for neuronal function (5).
The HGNC name for this protein is MECP2.



Left: Western blot analysis of MeCP2 expression in nuclear extracts from mouse brain with RPCA-MeCP2. This polyclonal antibody recognizes a strong and clear band at 75 kDa corresponding to total MeCP2 of mouse brain in SDS-PAGE, while molecular weight of MeCP2 protein is 54 kDa. **Right:** Mouse brain section, which was cut at 45µm on a vibratome after perfusion with 4% paraformaldehyde and overnight fixation, was stained with polyclonal antibody: RPCA-MeCP2. MeCP2 was mainly associated with methylated DNA in nucleus of neuron cells (green). Blue shows DAPI staining of nuclear DNA.

Antibody Characteristics: Our antibody was made against synthetic peptide from aa 471-486 of human MeCP2. It is supplied as an aliquot of 1 mg/mL affinity purified material in 1x PBS with 5mM sodium azide. Store at 4°C or -20°C. Avoid repeat freezing and thawing.

Suggestions for use: Try at dilutions of 1:1,000 for immunofluorescence. For western blots try at 1:1,000-1:5,000.

References:

1: Klose RJ, Sarraf SA, Schmiedeberg L, McDermott SM, Stancheva I and Bird AP. DNA binding selectivity of MeCP2 due to a requirement for A/T sequences adjacent to methyl-CpG. Mol. Cell, 19, 667–678 (2005).
2: Amir RE, Van den Veyver IB, Wan M, Tran CQ, Francke U and Zoghbi HY. Rett syndrome is caused by mutations in X-linked MECP2, encoding methyl-CpG-binding protein 2. Nat. Genet., 23, 185–188 (1999).

3: Zhou Z, Hong EJ, Cohen S, Zhao WN, Ho HY, Schmidt L, Chen WG, Lin Y, Savner E, Griffith EC, Hu L, Steen JA, Weitz CJ, Greenberg ME. Brain-specific phosphorylation of MeCP2 regulates activity dependent Bdnf transcription, dendritic growth, and spine maturation. Neuron 52:255–269 (2006).

4: Deng JV, Rodriguz RM, Hutchinson AN, Kim IH, Wetsel WC, West AE. MeCP2 in the nucleus acumbens contributes to neural and behavioral responses to psychostimulants. Nat Neurosci. 13(9):1128-36 (2010).

5: Tao J, Hu K, Chang Q, Wu H, Sherman NE, Martinowich K, Klose RJ, Schanen C, Jaenisch R, Wang W, Sun YE. Phosphorylation of Mecp2 at Serine 80 regulates its chromatin association and neurological function. Proc Natl Acad Sci U S A 24;106(12) (2009).

Limitations: This product is for research use only and is not approved for use in humans or in clinical diagnosis.