Revision 6

MeCP2 (D4F3) XP® Rabbit mAb

#3456 Store at -20C

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, W-S, IP, IHC-P, IF-F, IF-IC, FC-FP	H M R Mk	Endogenous	75	Rabbit IgG	#P51608	4204

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Simple Western™	1:10 - 1:50
Immunoprecipitation	1:25
Immunohistochemistry (Paraffin)	1:1600
Immunofluorescence (Frozen)	1:100 - 1:200
Immunofluorescence (Immunocytochemistry)	1:200
Flow Cytometry (Fixed/Permeabilized)	1:100

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

For a carrier free (BSA and azide free) version of this product see product #72635.

Specificity/Sensitivity

MeCP2 (D4F3) XP® Rabbit mAb detects endogenous levels of MeCP2 (both isoforms A and B). This antibody does not cross-react with other MBD proteins.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to the carboxy terminus of human MeCP2.

Background

Methyl-CpG-binding protein 2 (MeCP2) is the founding member of a family of methyl-CpG-binding domain (MBD) proteins that also includes MBD1, MBD2, MBD3, MBD4, MBD5, and MBD6 (1-3). Apart from MBD3, these proteins bind methylated cytosine residues in the context of the di-nucleotide 5´-CG-3´ to establish and maintain regions of transcriptionally inactive chromatin by recruiting a variety of co-repressor proteins (2). MeCP2 recruits histone deacetylases HDAC1 and HDAC2, and the DNA methyltransferase DNMT1 (4-6). MBD1 couples transcriptional silencing to DNA replication and interacts with the histone methyltransferases ESET and SUV39H1 (7,8). MBD2 and MBD3 co-purify as part of the NuRD (nucleosome remodeling and histone de-acetylation) co-repressor complex, which contains the chromatin remodeling ATPase Mi-2, HDAC1, and HDAC2 (9,10). MBD5 and MBD6 have recently been identified and little is known regarding their protein interactions. MBD proteins are associated with cancer and other diseases; MBD4 is best characterized for its role in DNA repair and MBD2 has been linked to intestinal cancer (11,12). Mutations in the *MeCP2* gene cause the neurologic developmental disorder Rett Syndrome (13). MeCP2 protein levels are high in neurons, where it plays a critical role in multiple synaptic processes (14). In response to various physiological stimuli, MeCP2 is phosphorylated on Ser421 and regulates the expression of genes controlling dendritic patterning and spine morphogenesis (14). Disruption of this process in individuals with altered MeCP2 may cause the pathological changes seen in Rett Syndrome.

Background References

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5. Jones, P.L. et al. (1998) *Nat Genet* 19, 187-91.
6. Fuks, F. et al. (2003) *J Biol Chem* 278, 4035-40.
7. Sarraf, S.A. and Stancheva, I. (2004) *Mol Cell* 15, 595-605.
8. Fujita, N. et al. (2003) *J Biol Chem* 278, 24132-8.
9. Zhang, Y. et al. (1999) *Genes Dev* 13, 1924-35.
10. Wade, P.A. et al. (1999) *Nat Genet* 23, 62-6.
11. Hendrich, B. et al. (1999) *Nature* 401, 301-4.
12. Sansom, O.J. et al. (2003) *Nat Genet* 34, 145-7.
13. Miltenberger-Miltenyi, G. and Laccone, F. (2003) *Hum Mutat* 22, 107-15.
14. Zhou, Z. et al. (2006) *Neuron* 52, 255-69.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **W-S:** Simple Western™ **IP:** Immunoprecipitation **IHC-P:** Immunohistochemistry (Paraffin) **IF-F:** Immunofluorescence (Frozen) **IF-IC:** Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

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Limited Uses