MeCP2 (D4F3) XP® Rabbit mAb

Applications

Species Cross-Reactivity*  Molecular Wt.  Isotype

W, IP, IHC-P, IF-IC, F  H, M, R, Mk  75 kDa  Rabbit IgG**

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-acylation) co-repressor complex, which contains the chromatin remodeling ATPase Mi2, 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.

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.

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.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western blotting  1:1000
Immunoprecipitation  1:25
Immunohistochemistry (Paraffin)  1:1600†
Unmasking buffer: Citrate Antibody diluent: SignalStain® Antibody Diluent #8112

†Optimal IHC dilutions determined using SignalStain® Boost IHC Detection Reagent.

Recommended Isotype:

Western blotting: Anti-rabbit secondary antibody (HRP, Goat) #6111
Immunofluorescence (IF-IC): SignalStain® Boost (HRP, Rabbit) #6114
Immunofluorescence (IF-IC): SignalStain® Boost (HRP, Rabbit) #6114

Flow Cytometry: 1:200

For application specific protocols please see the web page for this product at www.cellsignal.com.

Background References:


IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween®20 at 4°C with gentle shaking, overnight.
Immunohistochemical analysis of paraffin-embedded mouse brain using MeCP2 (D4F3) XP® Rabbit mAb in the presence of control peptide (left) and antigen-specific peptide (right).

Immunohistochemical analysis of paraffin-embedded human lung carcinoma using MeCP2 (D4F3) XP® Rabbit mAb.

Immunohistochemical analysis of paraffin-embedded human prostate carcinoma using MeCP2 (D4F3) XP® Rabbit mAb.

Flow cytometric analysis of SH-SY5Y cells using MeCP2 (D4F3) XP® Rabbit mAb (solid line) compared to concentration-matched Rabbit (DA1E) mAb IgG XP® Isotype Control #3900 (dashed line). Anti-rabbit IgG (H+L), F(ab’)2 Fragment (Alexa Fluor® 488 Conjugate) #4412 was used as a secondary antibody.