



## Product Information

### Anti-MBD4

Developed in Rabbit  
Affinity Isolated Antibody

Product Number **M 9817**

### Product Description

Anti-MBD4 is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acids 541-554 of mouse MBD4, conjugated to KLH via an N-terminal added cysteine residue. The sequence is conserved in human. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-MBD4 recognizes mouse MBD4 by immunoblotting (approx. 65 kDa). Staining of the MBD4 band in immunoblotting is specifically inhibited by the immunizing peptide.

Chromatin, the physiological packaging structure of histone proteins and DNA, is a key element in the regulation of gene expression. Histones are subjected to post-translational modifications such as acetylation, phosphorylation, and methylation that play a major role in the regulation of transcription.<sup>1,2</sup> DNA methylation is the major modification of eukaryotic genomes, which occurs at the fifth position of cytosine in CpG dinucleotide sequences.<sup>3,4</sup> DNA methylation is associated with transcriptional repression.<sup>5,6</sup> Silencing of transcription units have been found to occur in genes located on the inactive X-chromosome, genes silenced by genomic imprinting, and genes silenced in transformed cell lines and tumors.<sup>3,7-9</sup>

The DNA methylation system is composed of methyl-CpG-binding proteins, as well as of NA cytosine methyl transferases.<sup>3,10</sup> Five methyl-CpG binding protein have been isolated: MeCP2, MBD1, MBD2, MBD3, and MBD4.<sup>10,11</sup> With the exceptions of MBD2 and MBD3, sequence similarity is limited to the methyl-CpG binding domains (MBD). Human MBD4, (580 amino acids), contains an N-terminal MBD domain and a distinctive C-terminal glycosylase domain. An alternative spliced form encodes a truncated human MBD4 protein lacking the C-terminal 42 amino acids.<sup>10</sup> The methyl-CpG-binding domain of MBD4 binds preferentially to 5-methylcytosine CpG-TpG mismatches, the primary product of deamination at methyl-CpG. The combined specificities of binding and catalysis indicates that this protein may function to minimize mutation at methyl-CpG.<sup>11</sup> *In vivo*, the DNA repair properties of MBD4

suggests that it plays a role in suppressing mutability and tumorigenesis.<sup>12</sup>

Antibodies reacting specifically with MBD4 may be used for studying chromatin remodeling effects on gene expression.

### Reagent

Anti-MBD4 is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1% bovine serum albumin (BSA) and 15 mM sodium azide.

Antibody concentration: Approx. 1.0 mg/ml

### Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

### Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

### Product Profile

For immunoblotting, a working antibody concentration of 0.5-1.0 µg/ml is recommended using nuclear extracts of the K-562 cell line.

Note: In order to obtain the best results using different techniques and preparations, we recommend determining the optimal working dilutions by titration.

### References

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