

## Product Information

### Anti-MBD1

Produced in rabbit, Affinity isolated antibody

Product Number **M 6569**

### Product Description

Anti-MBD1 is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acids 591-605 of human MBD1, conjugated to KLH via an N-terminal added lysine residue. This sequence is found in MBD1 isoforms. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti MBD1 recognizes recombinant human MBD1 (~80 kDa). Applications include immunoblotting and immunofluorescence. Staining of the MBD1 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, and is associated with transcriptional repression.<sup>3-6</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> To date, the DNA methylation system is composed of methyl-CpG-binding proteins, as well as of DNA cytosine methyl transferases.<sup>3, 10</sup> Five methyl-CpG binding proteins were isolated: MeCP2, MBD1, MBD2, MBD3 and MBD4.<sup>10</sup> With the exceptions of MBD2 and MBD3, sequence similarity is limited to the methyl-CpG binding domains themselves (MBD). MBD1 consists of five isoforms generated through alternative splicing: MBD1v1 (605 amino acids), MBD1v2 (585 amino acids), MBD1v3 (549 amino acids), MBD1v4 (503 amino acids), and PCM1 (556 amino acids).<sup>10</sup>

MBD1 can act as a transcriptional repressor. The way it performs this function is still a matter of investigation, although it is clear that it binds to both methylated and non-methylated DNA. MBD1 represses transcription by recruiting HP1 (heterochromatin-binding protein 1), the histone methyl transferase Suv39h1 and histone deacetylase, via its methyl binding domain (MBD), and by interacting with MCAF1 via the transcriptional repression domain (TRD) at the carboxyl terminus.<sup>11-13</sup>

### Reagent

The antibody is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: ~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 hazardous 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

By immunoblotting, a working antibody concentration of 0.25-0.5 µg/mL is recommended using extracts of HEK 293T cells transfected with MBD1 (isoform 3).

By indirect immunofluorescence, a working antibody concentration of 1-2 µg/mL using HEK 293T cells transfected with MBD1 (isoform 3), fixed with paraformaldehyde-triton.

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

#### References

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