

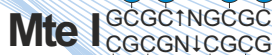


**SibEnzyme**<sup>®</sup>

*New enzymes  
for new DNA technologies*

# MD DNA Endonucleases

5mC-directed site-specific DNA endonucleases  
A new type of enzymes for epigenetic studies



Cleave only 5mC DNA

9 different recognition sites with 5mC

A good tool for study  
of human and mammalian DNA

New instrument for  
epigenetic diagnostics

## Known applications:

- GLAD-PCR Assay
- BlnI- and Glal-PCR Assay
- MteI-PCR Assay

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# MD DNA Endonucleases

5mC-directed site-specific DNA endonucleases

A new type of enzymes for epigenetic studies

SibEnzyme Ltd (Russia) is the only supplier of the novel type of DNA endonucleases: 5mC-directed site-specific DNA endonucleases.

In epigenetics a research work usually is connected with a study of DNA methylation in region of interest. The gold standard for DNA methylation analysis is sequencing of bisulphite converted DNA. However method of bisulphite conversion is quite sophisticated and often results in obtaining false positive data.

Alternative to bisulphite conversion is the enzymatic method to determine DNA methylation, which is based on the restriction enzymes sensitivity to DNA methylation.

For example, HpaII-PCR assay, based on HpaII (recognition site CCGG) that cleaves DNA sequence CCGG, but doesn't cut C(5mC)GG.

A principal difference of new type of enzymes, introduced by SibEnzyme, is that they cleave only methylated DNA. Besides they have 9 different recognition sites, one of which, Glal recognition site, is completely equal to the modification site of DNMT3, which is responsible for DNA methylation de novo.

On the basis of Glal SibEnzyme recently developed an easy and reliable method for detection of R(5mC)GY site in a desired position of genomic DNA (GLAD-PCR assay).

This method can be used for epigenetic diagnostics, for example, for early cancer detection.

MD DNA endonucleases are a good instrument to study human and mammalian DNA methylation.

Available 9 different recognition sites:

MD DNA Endonuclease	Recognition site
Glal	R(5mC)↑GY YG↓(5mC)R
Bisl	G(5mC)↑NGC CGN↓(5mC)G
Glul	G(5mC)↑NG(5mC) (5mC)GN↓(5mC)G
BlsI	RYN↑RY YR↓NYR (DNA sequence with at least two 5mC)
Mtel	G(5mC)G(5mC)↑NG(5mC)G(5mC) (5mC)G(5mC)GN↓(5mC)G(5mC)G
AoxI	↑RG(5mC)Y Y(5mC)GR↓
Krol	G↑C(5mC)GGC CGG(5mC)C↓G
Pcsl	(5mC)GNNNNN↑NN(5mC)G G(5mC)NN↓NNNNNG(5mC)
Pkrl	GCN↑GC CG↓NCG (DNA sequence with at least three 5mC)

MD-DNA Endonucleases



Epigenetic articles



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