5-mCpA antibody (mAb)

Catalog Nos: 61783, 61784
RRID: AB_2793764
Clone: 2C8H8A6
Isotype: IgG1
Application(s): DB
Reactivity: Not Species Specific

Quantities: 100 µg, 10 µg
Purification: Protein A Chromatography
Host: Mouse
Concentration: 1 µg/µl

Background: DNA methylation is important for regulation of transcription, and in processes including imprinting, gene silencing and cancer development. Methylation occurs predominantly at cytosine within the dinucleotide CpG (meCpG), which is frequently found in promoter regions near transcription start sites, as well as in promoters for functional non-coding RNAs. However, methylation at CpG dinucleotides makes them susceptible to both spontaneous deamination and enzyme-mediated deamination, resulting in thymine substitution (T/G mismatch) and the formation of a CpA dinucleotide in the opposite strand. Therefore, there is a strong correlation of CpG dinucleotide depletion or "suppression" with an observed increase in TpG/CpA dinucleotides.In mammals, there are certain cell types in which significant levels of methylation at CpA, (meCpA), CpT (meCpT), CpC (meCpC) is also observed, including embryonic stem cells, oocytes, primordial germ cells and neurons. Early observations suggest that meCpA, in particular, has different nuclear distribution than meCpG, and that meCpA may associate with active transcription rather than suppression. DNA methylation is important for regulation of transcription, and in processes including imprinting, gene silencing and cancer development. Methylation occurs predominantly at cytosine within the dinucleotide CpG (meCpG), which is frequently found in promoter regions near transcription start sites, as well as in promoters for functional non-coding RNAs. However, methylation at CpG dinucleotides makes them susceptible to both spontaneous deamination and enzyme-mediated deamination, resulting in thymine substitution (T/G mismatch) and the formation of a CpA dinucleotide in the opposite strand. Therefore, there is a strong correlation of CpG dinucleotide depletion or "suppression" with an observed increase in TpG/CpA dinucleotides.In mammals, there are certain cell types in which significant levels of methylation at CpA, (meCpA), CpT (meCpT), CpC (meCpC) is also observed, including embryonic stem cells, oocytes, primordial germ cells and neurons. Early observations suggest that meCpA, in particular, has different nuclear distribution than meCpG, and that meCpA may associate with active transcription rather than suppression.

5-mCpA Antibody Specificity
Dot blot analysis was used to confirm the specificity of 5-mCpA antibody for the 5-mCpA dinucleotide. Single-stranded DNA oligonucleotides (amount of oligo in nanograms listed on the left side of the blot) were spotted on to a positively charged nylon membrane and blotted with 5-mCpA (1 µg/ml dilution). Column 1: 5-meCpA. Column 2: CpA. Column 3: 5-meCpC. Column 4: 5-meCpT. Column 5: 5-meCpG. Column 6: Ap5mC

Immunogen: This antibody was raised against 5-methyl-cytosine-adenosine di-nucleoside conjugated to KLH and recognized 5-mCpA.

Buffer: Purified IgG in PBS with 30% glycerol and 0.035% sodium azide. Sodium azide is highly toxic.

Application Notes:
Applications Validated by Active Motif:
DB: 1 µg/ml