

Mouse anti-Human, Mouse 5-Hydroxymethylcytosine Monoclonal Antibody

5-Hydroxymethylcytosine (5-hmC) antibody (mAb)(Clone 59.1)

CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA59960	Mouse	Human, Mouse	Immunohistochemistry, Immunofluorescence, Immunocytochemistry, Dot Blot

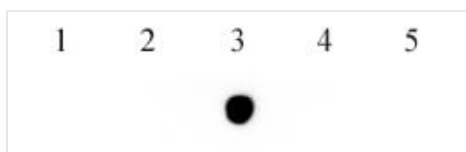
PRODUCT SYNONYMS

5-Hydroxymethylcytosine; Monoclonal Antibody; 5-Hydroxymethylcytosine (5-hmC) antibody (mAb)(Clone 59.1); anti-5-Hydroxymethylcytosine antibody

PRODUCT SPECIFICATIONS

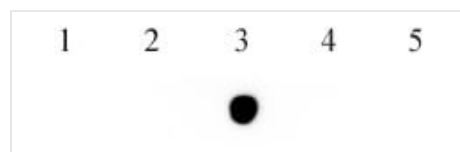
Host	Mouse
Reactivity	Human, Mouse
Clonality	Monoclonal
Isotype	IgG2a
Clone Number	59.1
Purity/Purification	Protein G Chromatography
Form/Format	Purified IgG in 70mM Tris (pH8), 105mM NaCl, 31mM glycine, 0.07mM EDTA, 30% glycerol and 0.035% sodium azide. Sodium azide is highly toxic.
Concentration	1ug/ul (varies by lot)
Applicable Applications for anti-5-Hydroxymethylcytosine antibody	IHC (Immunohistochemistry), IF (Immunofluorescence), ICC (Immunocytochemistry), DB (Dot Blot)
Conjugation	Methylated
Immunogen	This 5-Hydroxymethylcytosine antibody was raised against 5-hydroxymethylcytidine conjugated to KLH and recognizes 5-hydroxymethylcytosine.
Preparation and Storage	Some products may be shipped at room temperature. This will not affect their stability or performance. Avoid repeated freeze/thaw cycles by aliquoting items into single-use fractions for storage at -20 degree C for up to 2 years. Keep all reagents on ice when not in storage.1ug/ul

IMAGES



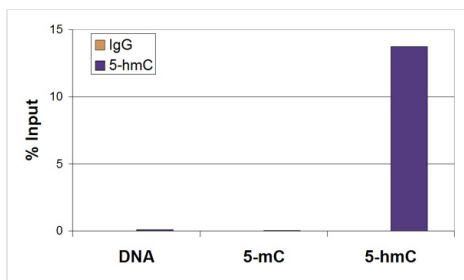
DB (Dot Blot)

Dot blot of 5-Hydroxymethylcytosine (5-hmC) mAb. Dot blot analysis was used to confirm the specificity of 5-Hydroxymethylcytosine antibody for 5-hydroxymethylcytidine. 10 ng of single-stranded 38 nt DNA oligonucleotides were spotted onto nitrocellulose and probed with the antibody at 0.2mg/mL. Lane 1: oligo containing unmodified cytidine. Lane 2: oligo containing 5-methylcytidine. Lane 3: oligo containing 5-hydroxymethylcytidine. Lane 4: oligo containing 5-formylcytidine. Lane 5: oligo containing 5-carboxylcytidine.



DB (Dot Blot)

5-Hydroxymethylcytosine (5-hmC) antibody (mAb) tested by dot blot analysis. DNA samples were spotted (indicated in ng on the left) on to a positively charged nylon membrane and blotted with 5-Hydroxymethylcytidine antibody at a 0.2 mg/ml dilution. Lane 1: double-stranded DNA containing 5-hydroxymethylcytosine. Lane 2: double-stranded DNA containing 5-methylcytosine. Lane 3: unmethylated double-stranded DNA. Lane 4: single-stranded DNA containing 5-hydroxymethylcytosine. Lane 5: single-stranded DNA containing 5-methylcytosine. Lane 6: unmethylated single-stranded DNA.



ChIP (Chromatin Immunoprecipitation)

hMeDIP-chip performed on human brain DNA using 5-Hydroxymethylcytosine (5-hmC) antibody. Human brain DNA (2 ug) was immunoprecipitated with 10 ug of 5-Hydroxymethylcytosine antibody. Following hMeDIP, the DNA was amplified, labeled and hybridized to an Affymetrix Human Tiling 2.0R Array. Shown is a region from chromosome 6q containing the ARID1B, ZDHHC14 and SNX9 genes. The results show that 5-hydroxymethylcytosine is enriched primarily in the coding regions of genes, rather than in the gene promoter or regulatory regions.

IP (Immunoprecipitation)

5-Hydroxymethylcytosine (5-hmC, 5-hydroxymethylcytidine) antibody tested by Methyl DNA immunoprecipitation. DNA (25 pg) derived from the promoter of the APC gene was spiked into 500 ng of human genomic DNA and subjected to the MeDIP procedure using 2 ?g of 5-Hydroxymethylcytidine antibody (5hmC, maroon bars) or 2 ?g of control rabbit IgG (IgG, blue bars). Real time quantitative PCR was performed on the immunoprecipitated DNA and results plotted as % of input DNA. The spiked APC DNA contained either no methylation (DNA), 5-methylcytosine methylation (5-mC) or 5-hydroxymethylcytosine methylation (5-hmC).

ADDITIONAL INFORMATION

Related Product Information for anti-5-Hydroxymethylcytosine antibody

Short Description: Our 5-Hydroxymethylcytosine (5-hmC) antibody (mAb)(Clone 59.1) was raised in a Mouse host. It has been validated for use in Dot blot, Immunocytochemistry, Immunofluorescence, Immunohistochemistry and Methyl DNA Immunoprecipitation; it has been shown to react with Human and Mouse samples, but the sequence is not species specific so it should react with a wide range of sample types.

Background: In addition to this monoclonal, We offers two polyclonal antibodies that recognize 5-hydroxymethylcytosine, a whole serum version and a purified IgG version. All are validated for use in methyl DNA immunoprecipitation (MeDIP). For customers that require the ability to quantitate the amount of IgG in the MeDIP reaction, we recommend either this monoclonal or the purified IgG polyclonal. The whole serum version is very high titre and should be used carefully (0.1-0.5 ul per IP) as not to generate high non-specific background. The whole serum version has been used successfully in immunofluorescence (IF, <http://www.ncbi.nlm.nih.gov/pubmed/20639862>, 2010), and the purified IgG version is likely to work in this application as well.

DNA methylation is an epigenetic event in which DNA methyltransferases (DNMTs) catalyze the reaction of a methyl group to the fifth carbon of cytosine in a CpG dinucleotide. This modification helps to control gene expression and is also involved in genomic imprinting, while aberrant DNA methylation is often associated with disease. 5-methylcytosine is a modified base that is found in the DNA of plants and vertebrates.

A second type of DNA methylation exists, 5-hydroxymethylcytosine (5-hydroxy methylcytosine, 5-hmC). This results from the enzymatic conversion of 5-methylcytosine into 5-hydroxymethylcytosine by the TET family of cytosine oxygenases. This antibody was developed specifically to distinguish 5-hydroxymethylcytosine from 5-methylcytosine as conventional methods (enrichment by antibody or methyl DNA binding protein, enzymatic digestion and bisulfite sequencing) cannot do so.

It is possible that 5-hydroxymethylcytosine (5-hmC) represents a pathway to demethylate DNA, as 5-hydroxymethylcytosine is repaired as mismatched DNA and replaced with unmethylated cytosine.

Product Categories/Family for anti-5-Hydroxymethylcytosine antibody

Primary Antibodies

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/monoclonal/5-hydroxymethylcytosine-antibody-clone-59-1-immunohistochemistry-immunofluorescence-immunocytochemistry-dot-blot-elisa/59960>