

## Complete Solutions for Determining

# The True Status of DNA Methylation

### DNA Methylation vs DNA Hydroxymethylation

The recent discovery of 5-hydroxymethylcytosine (5-hmC) in mammalian DNA has complicated methylation analyses and stirred up the epigenetic community. The function of 5-hmC in epigenetics may be different from its forerunner, 5-methylcytosine (5-mC), as 5-hmC seems to prompt DNA demethylation.

However, existing methylated DNA analysis methods including restriction enzyme digestion and bisulfite or MeDIP-mediated MS-PCR and sequencing may have been incorrectly detecting 5-hmC as 5-mC, as 5-hmC and 5-mC are virtually indistinguishable between each other with these methods.

It is necessary to re-evaluate the enormous amounts of existing DNA methylation data by determining if 5-hmC also exists in the analyzed samples. It is also necessary to determine the contents of 5-mC and 5-hmC and their ratios in different cell types and in different compartments of the genome of mammals. And it is particularly important to identify the true status of epigenetic changes at the DNA level in diseased human cells and tissues: is it methylation or hydroxymethylation?

**“The true status of global DNA methylation can only be determined when 5-hydroxymethylcytosine is accurately distinguished from 5-methylcytosine. Epigentek provides a complete kit series that’s designed to identify, distinguish, and quantify global DNA methylation and hydroxymethylation.”**



Epigentek introduces its **MethylFlash** kits which use an immunospecific detection method on a 96-well plate to accurately and rapidly determine global DNA methylation or hydroxymethylation.

By replacing cumbersome and expensive HPLC or mass spectrometry methods, you can now practically and routinely quantify either 5-mC and 5-hmC individually or both of them simultaneously.

# MethylFlash™ Methylated DNA Quantification Kit

- ✓ Measures global DNA methylation levels in less than 4 hours.
- ✓ 96-stripwell microplate format for manual or high throughput analysis.
- ✓ No cross-reactivity to unmethylated cytosine.
- ✓ Includes universal positive and negative controls, suitable for quantifying methylated DNA from any species.
- ✓ Available in either colorimetric or fluorometric detection formats.

# MethylFlash™ Hydroxymethylated DNA Quantification Kit

- ✓ Measures global DNA hydroxymethylation levels in less than 4 hours.
- ✓ 96-stripwell microplate format for manual or high throughput analysis.
- ✓ No cross-reactivity to methylcytosine and unmethylated cytosine.
- ✓ Includes universal positive and negative controls, suitable for quantifying hydroxymethylated DNA from any species.
- ✓ Available in either colorimetric or fluorometric detection formats.

**“The MethylFlash kit for 5-methylcytosine quantification and the MethylFlash kit for 5-hydroxymethylcytosine quantification can be paired together for the optimal determination of true DNA methylation status.”**

## CATALOG INFORMATION

Description	Size	Catalog #
MethylFlash™ Methylated DNA Quantification Kit (Colorimetric)	48 assays 96 assays	P-1034-48 P-1034-96
MethylFlash™ Methylated DNA Quantification Kit (Fluorometric)	48 assays 96 assays	P-1035-48 P-1035-96
MethylFlash™ Hydroxymethylated DNA Quantification Kit (Colorimetric)	48 assays 96 assays	P-1036-48 P-1036-96
MethylFlash™ Hydroxymethylated DNA Quantification Kit (Fluorometric)	48 assays 96 assays	P-1037-48 P-1037-96

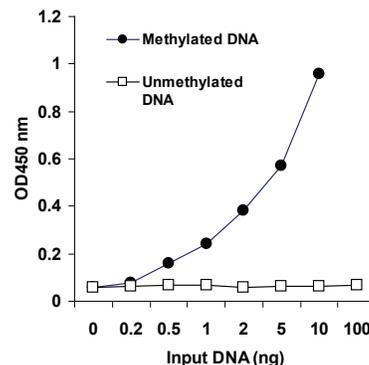


Fig 1 | Synthetic unmethylated DNA and methylated DNA were added into the assay wells at different concentrations and then measured with the MethylFlash™ Methylated DNA Quantification Kit (Colorimetric).

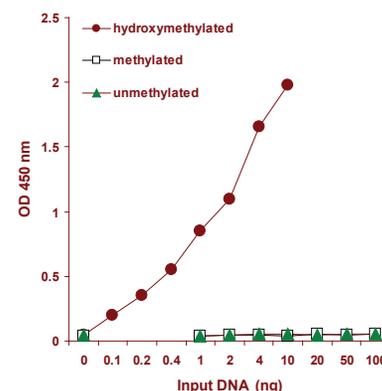


Fig 2 | Synthetic unmethylated DNA, methylated DNA, & hydroxymethylated DNA standard were added into the assay wells at different concentrations and then measured with the MethylFlash™ Hydroxymethylated DNA Quantification Kit (Colorimetric).

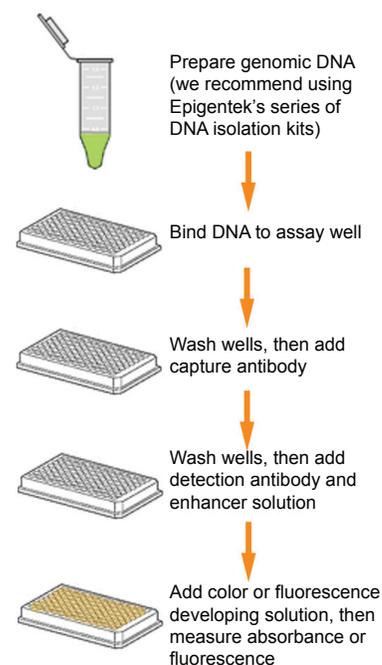


Fig 3 | Schematic procedure for the MethylFlash kits.