

Epigenetic Solutions Vol. 5



research tools for:

DNA Methylation & Demethylation
Chromatin & Transcription
Histone Modifications
Gene Expression & Silencing
DNA Damage & Repair
Phosphorylation
Sumoylation

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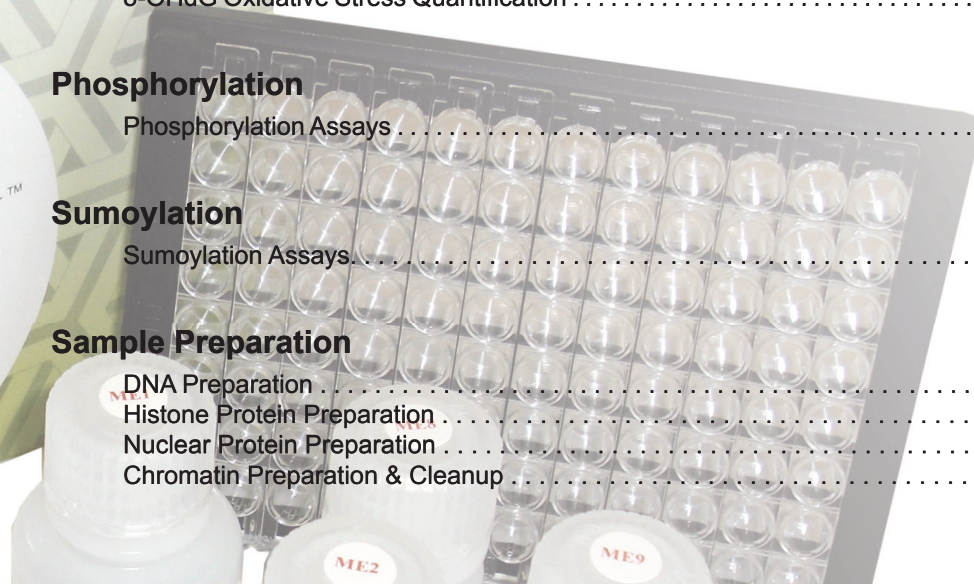
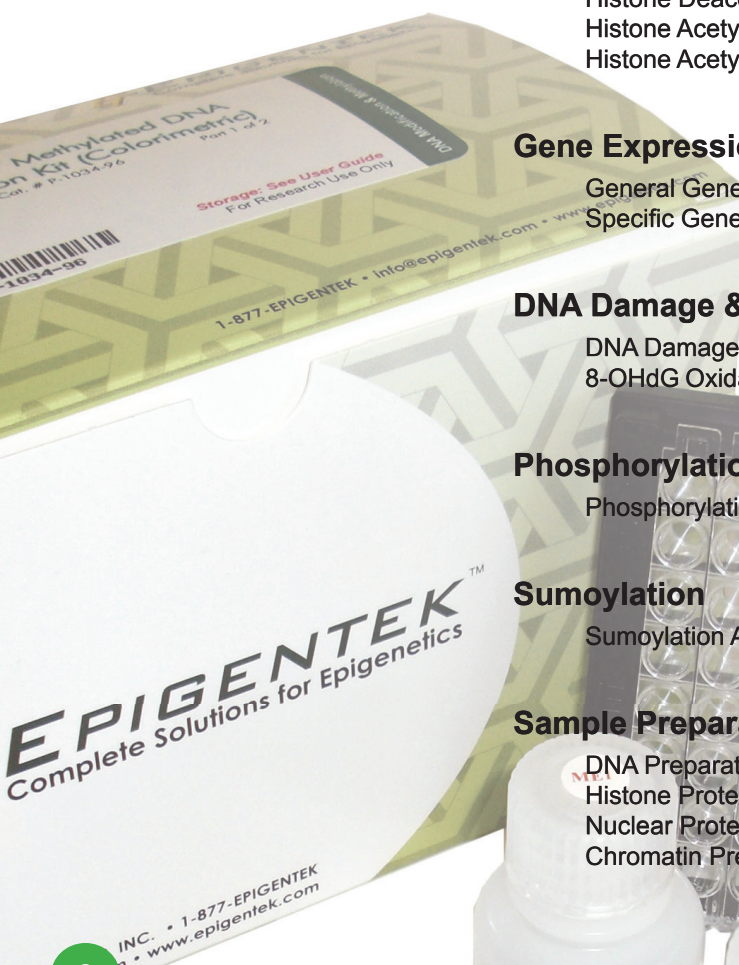
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DNA Methylation Quantification

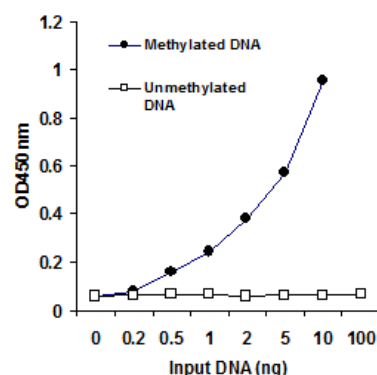
MethylFlash™ Methylated DNA Quantification Kit

The MethylFlash™ Methylated DNA Quantification Kit, available in both colorimetric and fluorometric versions, is a complete set of optimized buffers and reagents to quantify global DNA methylation in DNA samples by specifically measuring levels of 5-methylcytosine (5-mC) in a microplate-based format.

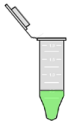
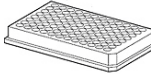
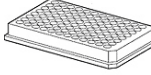

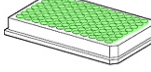
Product Features

The MethylFlash™ Methylated DNA Quantification Kit (Colorimetric) is the latest generation of our popular global DNA methylation quantification technology, further simplifying workflow and improving the consistency of results. It uses an innovative method to enable background signals to be extremely low, eliminating the plate drying and blocking steps. Compared to chromatography-based methods such as HPLC or mass spectrometry, this product provides a cost-effective way to accurately measure levels of 5-methylcytosine. The kit has the following advantages and features:

- ✓ Colorimetric or fluorometric assay with easy-to-follow steps for convenience and speed. The entire procedure can be finished within 4 hours.
- ✓ Innovative kit composition enables background signals to be extremely low, which eliminates the need for plate blocking and allows the assay to be simple, accurate, reliable, and consistent.
- ✓ High sensitivity, of which the detection limit of the colorimetric assay can be as low as 0.2 ng of methylated DNA and the fluorometric assay as low as 50 pg of methylated DNA.
- ✓ Optimized antibody and enhancer solutions allow high specificity to 5-mC, with no cross-reactivity to unmethylated cytosine and no or negligible cross-reactivity to hydroxymethylcytosine within the indicated concentration range of the sample DNA.
- ✓ Universal positive and negative controls are included which are suitable for quantifying methylated DNA from any species.
- ✓ Strip-well microplate format makes the assay flexible for either manual or high throughput analysis.



Demonstration of high sensitivity and specificity of methylated DNA detection achieved by the MethylFlash™ kit. Synthetic unmethylated DNA (contains 50% cytosine) and methylated DNA (contains 50% 5-methylcytosine) were added into the assay wells at different concentrations and then measured with the MethylFlash™ Methylated DNA Quantification Kit (Colorimetric).

- 1 Prepare genomic DNA (we recommend using Epigentek's series of DNA isolation kits) 
- 2 Bind DNA to assay well 
- 3 Wash wells, then add capture antibody 
- 4 Wash wells, then add detection antibody and enhancer solution 
- 5 Add color or fluorescence developing solution, then measure absorbance or fluorescence 

Product Name	Size	Cat. No.
MethylFlash Methylated DNA Quantification Kit (Colorimetric)	48 assays	P-1034-48
	96 assays	P-1034-96
MethylFlash Methylated DNA Quantification Kit (Fluorometric)	48 assays	P-1035-48
	96 assays	P-1035-96

MethylFlash™ Urine 5-Methylcytosine (5-mC) Quantification Kit

This product is a complete set of optimized buffers and reagents to quantify 5-mC in fresh or frozen urine samples using an inhibitory competitive immunoassay method. It is suitable for detecting total urinary 5-methylcytosine levels, resulting from whole body turnover or degradation of methylated DNA/RNA in urine from humans and animals. A novel assay principle allows for high sensitivity to be achieved with a detection limit that can be as low as

0.03 ng/assay well or 1 nM of 5-mC. Through the use of an optimized antibody and enhancer solution there is high specificity to 5-mC, without cross-reactivity to unmethylated cytosine.

Product Name	Size	Cat. No.
MethylFlash Urine 5-Methylcytosine (5-mC) Quantification Kit (Colorimetric)	48 assays	P-1039-48
	96 assays	P-1039-96
MethylFlash Urine 5-Methylcytosine (5-mC) Quantification Kit (Fluorometric)	48 assays	P-1040-48
	96 assays	P-1040-96

DNA Hydroxymethylation Quantification

MethylFlash™ Hydroxymethylated DNA Quantification Kit

The MethylFlash™ Hydroxymethylated DNA Quantification Kit, available in both colorimetric and fluorometric versions, is a complete set of optimized buffers and reagents to quantify global DNA hydroxymethylation in DNA samples by specifically measuring levels of 5-hydroxymethylcytosine (5-hmC) in a microplate-based format.

About 5-Hydroxymethylcytosine

5-hmC is a modified form of cytosine, recently discovered in animal tissue. The function of 5-hmC in epigenetics may be different from its forerunner 5-methylcytosine (5-mC) and may be involved in DNA demethylation. It is believed that 5-hmC plays an important role in switching genes on and off. The presence of 5-hmC makes it necessary to not only re-evaluate existing DNA methylation data, but also to determine the relative distribution and changes of 5-hmC in human tissues of healthy and diseased states. Prior to Epigentek's MethylFlash™ technology, there were no methods for practically and routinely identifying 5-hmC and discriminating this base from 5-mC.

Distinguishing Between 5-hmC and 5-mC

Currently used methylated DNA analysis methods, including restriction enzyme digestion and bisulfite or MeDIP-mediated MS-PCR and sequencing, are not suitable for 5-hmC detection as 5-hmC and 5-mC are virtually indistinguishable from each other with these methods. To address this problem, Epigentek offers the MethylFlash™ Hydroxymethylated DNA Quantification Kit which uses a unique immunospecific procedure to quantify global DNA hydroxymethylation. This product provides a cost-effective way to measure levels of 5-hydroxymethylcytosine and to distinguish between 5-hmC, 5-mC, and C. This allows for researchers to re-evaluate their DNA methylation data for DNA hydroxymethylation and to efficiently look for DNA hydroxymethylation in new DNA samples. The kit has the following advantages and features:

- ✓ Colorimetric or fluorometric assay with easy-to-follow steps for convenience and speed. The entire procedure can be completed within 3 hours and 45 minutes.
- ✓ High sensitivity, of which the detection limit of the colorimetric assay can be as low as 40 pg of hydroxymethylated DNA and the fluorometric assay as low as 20 pg of hydroxymethylated DNA.
- ✓ High specificity with no cross-reactivity to methylcytosine and unmethylated cytosine. 5-hydroxymethylcytosine is separately detected.
- ✓ Universal positive and negative controls are included which are suitable for quantifying hydroxymethylated DNA from any species.
- ✓ Strip-well microplate format makes the assay flexible for either manual or high throughput analysis.
- ✓ Simple, reliable, and consistent assay conditions.

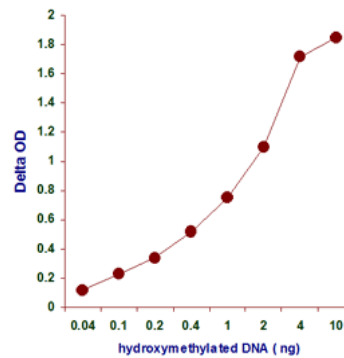


Fig 1 | Demonstration of high sensitivity of 5-hydroxymethylcytosine detection achieved by the MethylFlash™ kit. Synthetic hydroxymethylated DNA was added into the assay wells at different concentrations and then measured with the MethylFlash™ Hydroxymethylated DNA Quantification Kit.

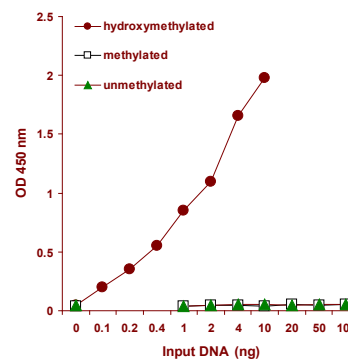
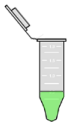
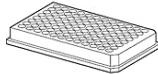
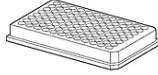

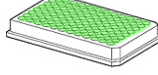


Fig 2 | Demonstration of high specificity of 5-hydroxymethylcytosine detection achieved by the MethylFlash™ kit. Synthetic unmethylated DNA (containing only cytosine), methylated DNA (containing only 5-methylcytosine), and hydroxymethylated DNA standard (containing only 5-hydroxymethylcytosine) were added into the assay wells at different concentrations and then measured with the MethylFlash™ Hydroxymethylated DNA Quantification Kit.

- 1 Prepare genomic DNA (we recommend using Epigentek's series of DNA isolation kits) 
- 2 Bind DNA to assay well 
- 3 Wash wells, then add capture antibody 
- 4 Wash wells, then add detection antibody and enhancer solution 
- 5 Add color or fluorescence developing solution, then measure absorbance or fluorescence 

Product Name	Size	Cat. No.
MethylFlash Hydroxymethylated DNA Quantification Kit (Colorimetric)	48 assays	P-1036-48
	96 assays	P-1036-96
MethylFlash Hydroxymethylated DNA Quantification Kit (Fluorometric)	48 assays	P-1037-48
	96 assays	P-1037-96

Bisulfite DNA Modification

BisulFlash™ DNA Modification Kit

The BisulFlash™ DNA Modification Kit is a complete set of optimized buffers and reagents to perform DNA modification using a next generation DNA bisulfite conversion technology developed by Epigentek. Through a proprietary composition which allows DNA denaturation and bisulfite conversion to be processed at the same time, the complete procedure is reduced to only 30 minutes. Furthermore, it prevents more than 90% of DNA loss, completely converting unmethylated cytosine into uracil.

About Bisulfite Conversion

Traditional methods involve a separate denaturation step followed by a subsequent sodium bisulfite DNA conversion step -- but with the BisulFlash™ method, DNA denaturation status is concurrently sustained throughout the entire bisulfite DNA conversion process. This breakthrough approach enables the DNA conversion process to be significantly faster, with higher conversion efficiency and accuracy. We continue to innovate with the development of the new BisulFlash™ kit by identifying four critical components of bisulfite conversion:

- ✓ **Speed:** Reduce the entire procedure to as short as 30 minutes without any reagent setup time.
- ✓ **Efficiency:** Completely convert unmethylated cytosine into uracil -- modified DNA > 99.9%.
- ✓ **DNA Protection:** Protect against DNA degradation of which more than 90% of DNA loss can be prevented, allowing for greater recovery.
- ✓ **Sensitivity:** Start with the lowest amount of input DNA for modification -- only 0.2 ng or just 50 cells.

The convenient, ready-to-use DNA conversion mix solution and single temperature incubation along with the features mentioned above allow for true perfection in bisulfite conversion. The BisulFlash™ DNA Modification Kit is suitable for MS-PCR, real time MS-PCR, methylation microarray, and pyrosequencing. Additionally, based on its ability for a complete cytosine conversion, it is suitable for next generation methylation sequencing/pyrosequencing.

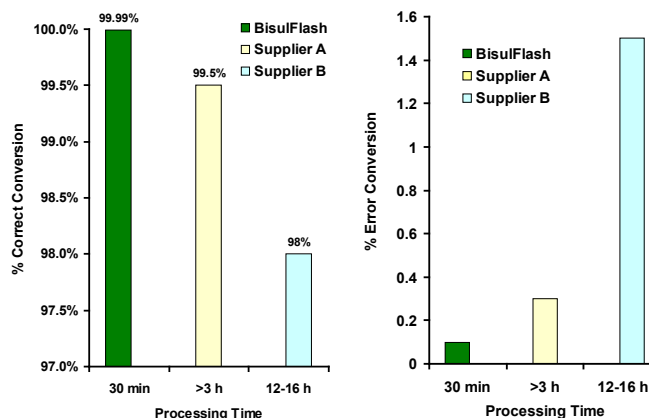
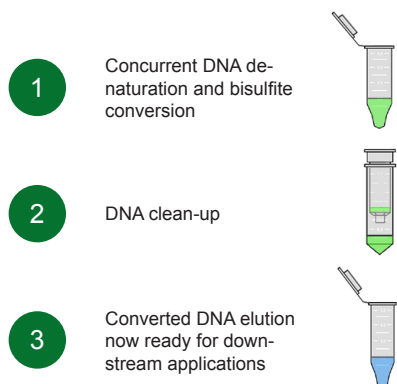


Fig 1 | Demonstration of high accuracy of DNA conversion achieved by the BisulFlash™ DNA Modification Kit. 50 ng of genomic DNA methylated in all CpG sites by DNA methylase was treated with the BisulFlash™ DNA Modification Kit. Converted DNA was then amplified by real time qPCR using primers for multiple promoters containing numerous CpG sites and then directly sequenced. Correct conversion (C-U) and inappropriate or error conversion (mC-T) rates were calculated as percentage of total cytosines or mCpGs. *Left Image:* correct conversion rate; *Right Image:* inappropriate or error conversion rate.

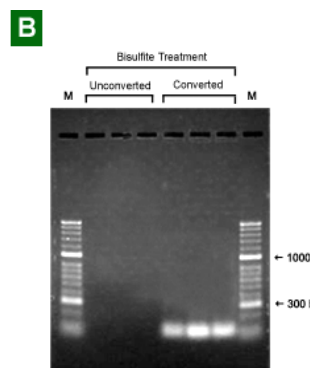
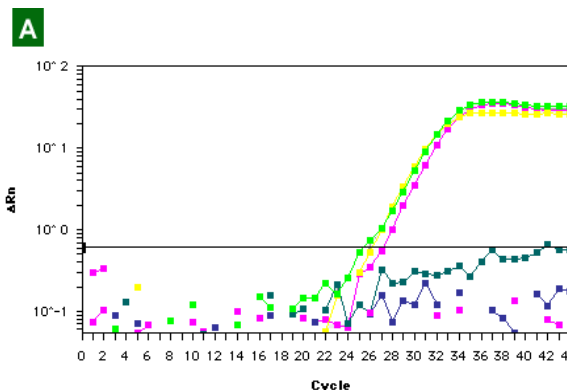
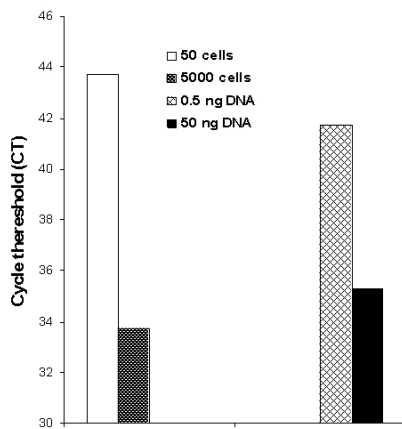


Fig 2 | Complete Cytosine Conversion. 200 ng of genomic DNA isolated from 3 cancer cell lines were treated with the BisulFlash™ DNA Modification Kit. Next, the unconverted and converted DNA in each treated sample were determined using unconverted DNA-specific and converted DNA-specific primers (β -actin, 110 bps), respectively. *Image A:* real time PCR with the Methylamp™ MS-qPCR Fast Kit (Cat. No. P-1028); *Image B:* end-point PCR. The BisulFlash™ kit treated DNA was completely converted and no unconverted DNA in the treated samples was determined after 45 cycles.

Product Name	Size	Cat. No.
BisulFlash DNA Modification Kit	50 reactions	P-1026-050

Methylamp™ Whole Cell Bisulfite Modification Kit

The Methylamp™ Whole Cell Bisulfite Modification Kit is an innovative set of essential components which enables the experimenter to modify DNA directly from cells or tissues using Epigentek's uniquely simplified and streamlined bisulfite method in order to perform DNA methylation analysis. The entire procedure can be completed within only 3 hours. The Methylamp™ Whole Cell Bisulfite Modification Kit is specifically designed for DNA methylation research using minute amounts of starting materials including cells cultured in 96-well/384-well plates, tissue section samples, microdissection samples, tissue biopsy, and early embryonic cells/oocytes.



The different amounts of MCF-7 cells or DNA isolated from MCF-7 cells were modified using the Methylamp™ Whole Cell Bisulfite Modification Kit or Methylamp™ One-Step DNA Modification Kit, respectively. 10 µl of modified DNA were eluted and 2 µl of elution were used in real time PCR. A pair of primers and a probe designed to amplify both methylated and unmethylated alleles of β-actin were used.

Product Name	Size	Cat. No.
Methylamp Whole Cell Bisulfite Modification Kit	40 samples	P-1016-40
	80 samples	P-1016-80

Methylamp™ 96 DNA Modification Kit

High throughput DNA bisulfite conversion via a 96-well filter format. 2 hour and 30 minute procedure.

Product Name	Size	Cat. No.
Methylamp 96 DNA Modification Kit	96 samples	P-1008-1
	192 samples	P-1008-2

Methylamp™ Coupled DNA Isolation & Modification Kit

Streamlined method to isolate DNA and then perform bisulfite conversion, all in one kit. 2 hour and 20 minute procedure.

Product Name	Size	Cat. No.
Methylamp Coupled DNA Isolation & Modification Kit	40 samples	P-1002-40

Methylamp™ Universal Methylated DNA Kit

Provides a methylation-positive control for methylation studies. Includes enzymatically methylated human genomic DNA and all components for DNA modification. Methylated human DNA needs to be modified before it is used as a positive control in methylation specific PCR.

Product Name	Size	Cat. No.
Methylamp Universal Methylated DNA Kit	10 modifications	P-1011-1
	20 modifications	P-1011-2

Methylated DNA Amplification

Methylamp™ MS-qPCR Fast Kit

Enables you to perform fast, specific, sensitive and reproducible methylation-specific quantitative PCR. Very suitable for quantitative methylation-specific PCR in a fast format using very minute amounts of DNA. The included hot start DNA polymerase can specifically reduce the overall time required for MS-qPCR from 2.5 hours to less than 70 minutes. Significantly increases primer-bisulfite DNA template annealing, while simultaneously reducing non-specific annealing.

- ✓ Extremely fast 70-minute procedure.
- ✓ Abundant yields due to high amplification efficiency.

- ✓ Highly accurate and specific in MSP, with reduced false-positive results.
- ✓ Convenient master mix format allows easy reaction setup.
- ✓ Simple, reliable, and consistent assay conditions.
- ✓ Can be used with any block-based real-time PCR device.

Product Name	Size	Cat. No.
Methylamp MS-qPCR Fast Kit	100 reactions	P-1028-100
	200 reactions	P-1028-200

Methylated DNA Immunoprecipitation (MeDIP)

Methylamp™ and EpiQuik™ MeDIP Kits

Epigentek's methylated DNA immunoprecipitation (MeDIP) kits each come as a complete set of optimized buffers and reagents that allows the experimenter to enrich methylated DNA in a convenient 96-well plate format. The entire procedure can be finished within 3 hours, producing enriched methylated DNA suitable for standardized DNA detection methods including PCR, microarrays, and sequencing.

About Methylated DNA Immunoprecipitation

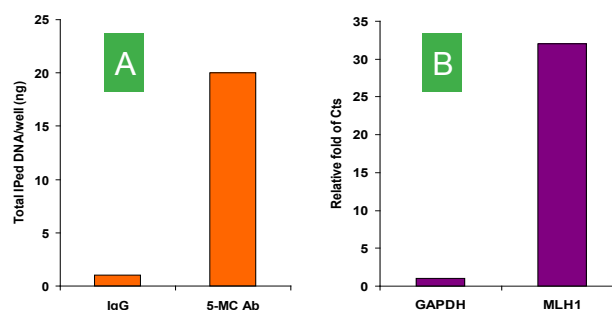
MeDIP is a genome-wide, large scale technique to enrich methylated DNA by isolating methylated DNA fragments with a 5-methylcytosine antibody. This technique has played an important role in helping to identify abnormally methylated genes in diseases such as cancer. With MeDIP, the immunoprecipitated fractions of methylated DNA can be determined by PCR to evaluate the methylation state of individual regions. Additionally, the purified fractions can be input to high throughput DNA detection methods such as DNA microarrays (MeDIP-chip) and next-generation sequencing (MeDIP-seq), becoming a useful approach for methylome-level analysis and for developing comprehensive profiles of DNA methylation on a genome-wide scale.

Taking the Epigentek Approach

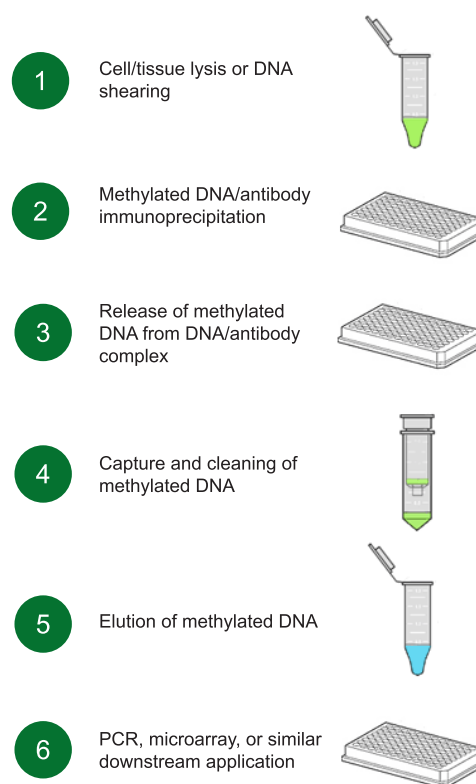
MeDIP is not without its limitations. The most common and crucial experimental factor of MeDIP that may affect its accuracy involves the quality and cross-reactivity of the 5-methylcytosine antibody used in the procedure. Epigentek overcame such a limitation through extensive research and development to create a highly efficient MeDIP kit by applying a non-cross-reactive 5mC antibody. In the kit's assay, DNA is sheared and then added into a microplate well or multiple wells in a high throughput format. A high quality ChIP-grade antibody specific to methylcytosine is then used to capture methylated DNA in the wells. The antibody-captured methylated DNA is released and is finally purified through the included spin columns. The eluted methylated DNA can now be used in various down-stream applications. The kit has the following features:

- ✓ A ChIP-grade antibody of superior quality which is specific only to methylcytosine is provided for a highly efficient enrichment of methylated DNA: > 98%.
- ✓ Normal mouse IgG is included as a negative control.
- ✓ Extremely fast procedure: go from input DNA, cells, or tissues to eluted DNA in as fast as 3 hours.
- ✓ Strip-well microplate format makes the assay flexible: manual or high throughput.
- ✓ Columns for DNA purification are included: save time and reduce labor.
- ✓ Compatible with all DNA amplification-based approaches.
- ✓ Simple, reliable, and consistent assay conditions.

Available for direct immunoprecipitation of methylated DNA fractions with DNA (Methylamp), cell lysates (EpiQuik), or tissue lysates (EpiQuik Tissue).



Enrichment of methylated DNA using the Methylamp™ Methylated DNA Capture Kit (Cat. No. P-1015). 0.5 µg of DNA isolated from MCF-7 cells was added into the wells, followed by: (a) methylated DNA captured by a 5-mC antibody; (b) captured methylated DNA used for analyzing methylation levels of GAPDH and MLH1 promoters with the use of primers and probes specific to GAPDH and MLH1 promoters, respectively.



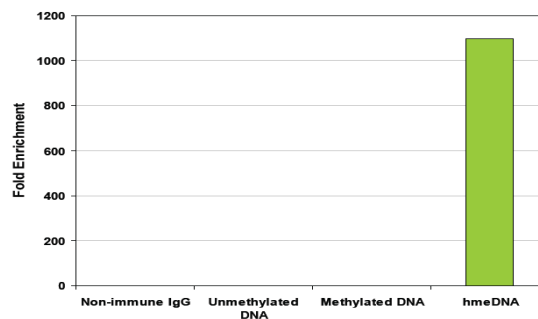
Product Name	Size	Cat. No.
Methylamp Methylated DNA Capture (MeDIP) Kit	24 reactions	P-1015-24
	48 reactions	P-1015-48
EpiQuik Methylated DNA Immunoprecipitation Kit	24 reactions	P-2019-24
	48 reactions	P-2019-48
EpiQuik Tissue Methylated DNA Immunoprecipitation Kit	24 reactions	P-2020-24
	48 reactions	P-2020-48

Hydroxymethylated DNA Immunoprecipitation (hMeDIP)

EpiQuik™ Hydroxymethylated DNA Immunoprecipitation (hMeDIP) Kit

This convenient microplate based kit uses an innovative method to efficiently capture DNA fragments containing 5-hmC on a genome-wide scale, allowing for downstream applications such as hMeDIP-PCR and hMeDIP-chip. The kit includes a high affinity 5-hmC antibody to selectively capture double-stranded or single-stranded DNA fragments containing 5-hmC.

- ✓ Extremely fast and convenient protocol with a total procedure time of less than 3 hours.
- ✓ Flexible 96 stripwell microplate format makes the assay very easy to handle: manual method with one reaction at a time or high throughput method with 96 reactions at a time.
- ✓ Low DNA input requirement - as low as 0.1 µg per reaction.
- ✓ Highly efficient enrichment: ratio of positive/negative control > 1000.
- ✓ High reproducibility through pre-optimized hMeDIP conditions.



Selective enrichment of hydroxymethylated DNA with the EpiQuik™ hMeDIP Kit. 50 pg of unmethylated, methylated, and hydroxymethylated DNA control were each spiked into fragmented human genomic DNA (500 ng). hMeDIP was processed with the 5-hmC antibody and non-immune IgG included in the kit. Eluted DNA was analyzed by real time PCR with the control primers included in the kit to detect the presence of spiked control DNA. Fold-enrichment represents the amount of recovered control DNA and was calculated based on the Cts.

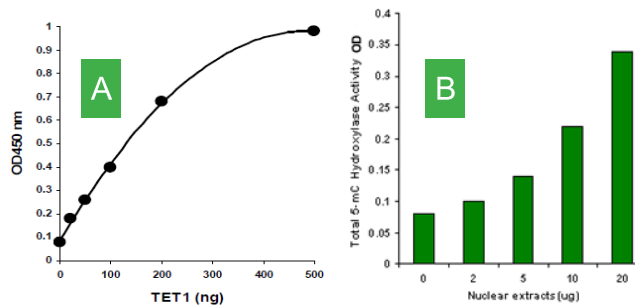
Product Name	Size	Cat. No.
EpiQuik Hydroxymethylated DNA Immunoprecipitation (hMeDIP) Kit	24 reactions	P-1038-24
	48 reactions	P-1038-48
	96 reactions	P-1038-96

5mC-Hydroxylase TET Assays

Epigenase™ 5mC-Hydroxylase TET Activity/Inhibition Assay Kit

The Epigenase™ 5mC Hydroxylase TET Activity/Inhibition Assay Kit is a complete set of optimized buffers and reagents for measuring the activity/inhibition of total 5mC hydroxylase TET enzymes in nuclear extracts or purified TET isoforms (TETs 1-3) from a broad range of species such as mammals, plants, fungi, and bacteria, and in a variety of forms including cultured cells and fresh and frozen tissues. TET is involved in DNA demethylation by mediating the oxidation of 5-methylcytosine.

- ✓ 5 hour assay procedure with easy-to-follow steps for convenience and speed.
- ✓ Directly measures TET hydroxylase activity via detection of TET-converted hydroxymethylated products.
- ✓ Either cell/tissue extracts or purified TET proteins can be used, which allows for detection of inhibitory effects of TET hydroxylase inhibitors *in vivo* and *in vitro*.
- ✓ Innovative kit composition enables background signals to be extremely low.
- ✓ TET activity can be detected from as low as 10 ng of purified TET1 hydroxylase.



(a) Demonstration of high sensitivity and specificity of the TET1 activity/inhibition assay was achieved by using recombinant TET1 with the Epigenase™ 5-mC Hydroxylase TET Activity/Inhibition Assay Kit. (b) Demonstration of high sensitivity and specificity of the TET activity assay was achieved by using nuclear extracts with the Epigenase™ 5-mC Hydroxylase TET Activity/Inhibition Assay Kit. Nuclear extracts were prepared from mouse ES cells by using the EpiQuik™ Nuclear Extraction Kit (Cat. No. OP-0002).

Product Name	Size	Cat. No.
Epigenase 5mC-Hydroxylase TET Activity/Inhibition Assay Kit (Colorimetric)	48 assays	P-3086-48
	96 assays	P-3086-96
Epigenase 5mC-Hydroxylase TET Activity/Inhibition Assay Kit (Fluorometric)	48 assays	P-3087-48
	96 assays	P-3087-96

DNA Methyltransferase Assays

EpiQuik™ DNA Methyltransferase (DNMT) Activity/Inhibition Assay Ultra Kit

The EpiQuik™ DNA Methyltransferase Activity/Inhibition Assay Ultra Kit is a complete set of optimized buffers and reagents that allows the experimenter to measure DNA methyltransferase activity or inhibition at extremely fast speeds. The kit is ready-to-use and provides all the essential components needed to carry out a successful DNMT activity/inhibition experiment without the need for radioactivity or any special equipment.

About DNA Methyltransferases

The addition of methyl groups is carried out by a family of enzymes, DNA methyltransferases (DNMTs). Chromatin structure in the vicinity of gene promoters also affects DNA methylation and transcriptional activity. DNMT1, DNMT3A, and DNMT3B are required for the establishment and maintenance of DNA methylation patterns. Two additional enzymes, DNMT2/TRDMT1 and DNMT3L, may also have more specialized but related functions. DNMT1 appears to be responsible for maintenance of established patterns of DNA methylation, while DNMT3A and 3B seem to mediate establishment of new, or de novo, DNA methylation patterns. DNMT2/TRDMT1 was shown to methylate tRNA^{Asp} at C38, and DNMT3L is found to be a catalytically inactive regulatory factor of DNA methyltransferases, which is essential for the function of DNMT3A and DNMT3B. Diseased cells such as cancer cells may be different in that DNMT1 alone is not responsible for maintaining abnormal gene hypermethylation and both DNMT1 and DNMT3B may cooperate with this function.

About The Assay

The EpiQuik DNMT Activity/Inhibition Assay Ultra Kit represents a further refinement of its predecessor kit by enhancing sample signals and significantly minimizing background signals, in addition to being five times more sensitive. In this assay, a universal DNMT substrate is stably coated onto the wells. DNMT enzymes transfer methyl groups to cytosines from Adomet to methylate the DNA substrate. The methylated DNA can be recognized with an anti-5-methylcytosine antibody. The ratio or amount of methylated DNA, which is proportional to the enzyme activity, can then be colorimetrically or fluorometrically measured by reading the absorbance or fluorescence in a microplate spectrophotometer. The activity of DNMT enzymes is proportional to the OD or RFU intensity measured. The kit has the following advantages and features:

- ✓ Colorimetric or fluorometric assay with easy-to-follow steps for convenience and speed. The entire procedure can be completed within 3 hours and 45 minutes.
- ✓ 5 fold higher sensitivity, of which the detection limit can be as low as 0.5 µg of nuclear extract or 0.5 ng of purified enzymes.
- ✓ Optimized antibody and enhancer solutions allow high specificity to 5-mC, with no cross-reactivity to unmethylated cytosine.

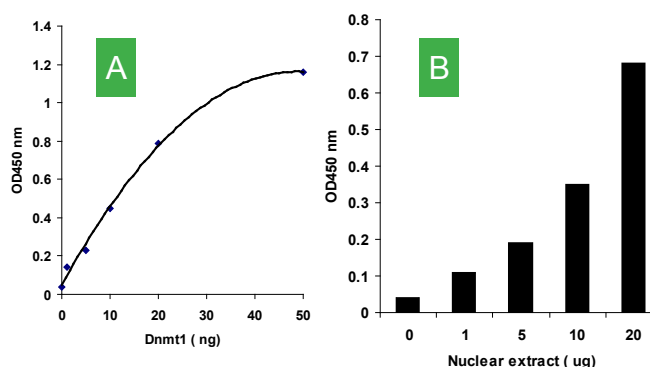
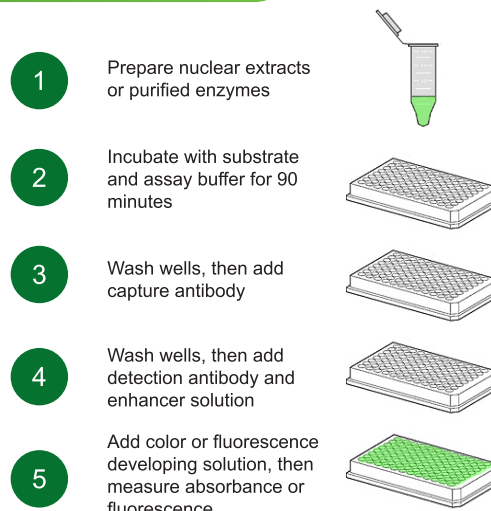


Fig 1 | EpiQuik™ DNMT activity and inhibition colorimetric assay. (a) High sensitivity and specificity was achieved by using recombinant DNMT1 with the EpiQuik™ DNA Methyltransferase Activity/Inhibition Assay Ultra Kit (Colorimetric); (b) High sensitivity and specificity was achieved by using nuclear extracts with the EpiQuik™ DNMT Activity/Inhibition Assay Ultra Kit (Colorimetric). Nuclear extracts were prepared from MCF-7 cells using the EpiQuik™ Nuclear Extraction Kit (Cat # OP-0002).

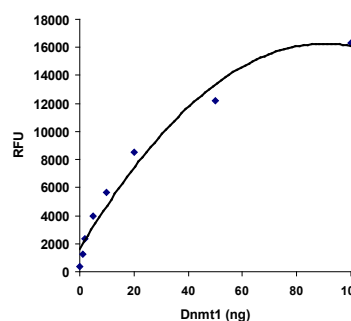


Fig 2 | EpiQuik™ DNMT activity and inhibition fluorometric assay. High sensitivity and specificity are achieved by using recombinant DNMT1 with the EpiQuik™ DNMT Activity/Inhibition Assay Ultra Kit (Fluorometric).

Product Name	Size	Cat. No.
EpiQuik DNA Methyltransferase Activity/Inhibition Assay Ultra Kit (Colorimetric)	48 assays	P-3009-48
	96 assays	P-3009-96
EpiQuik DNA Methyltransferase Activity/Inhibition Assay Ultra Kit (Fluorometric)	48 assays	P-3010-48
	96 assays	P-3010-96

DNA Methyltransferase Quantification

EpiQuik™ DNMT1, DNMT3A, and DNMT3B Assay Kits

Each of these three kits allows the experimenter to quantitatively measure either total DNMT1, DNMT3A, or DNMT3B amounts, respectively, with fresh tissues or cultured cells from humans or mice. Conventional methods involve electrophoresis and transfer processes which make an assay both inconvenient and time consuming. Epigentek is able to overcome these obstacles with a combination of optimized buffers and reagents for a rapid measurement of DNMT1, DNMT3A, or DNMT3B.

- ✓ Fast procedures that can be finished within 3 hours.
- ✓ Simple reliable and consistent assay conditions.

- ✓ Innovative colorimetric assays to quantitatively measure the amount of DNMT1, DNMT3A, or DNMT 3B without the need for electrophoresis.

Product Name	Size	Cat. No.
EpiQuik DNMT1 Assay Kit	48 assays	P-3011-2
	96 assays	P-3011-3
EpiQuik DNMT3A Assay Kit	48 assays	P-3012-2
	96 assays	P-3012-3
EpiQuik DNMT3B Assay Kit	48 assays	P-3013-2
	96 assays	P-3013-3

DNA Methyltransferase Screening Assays

EpiQuik™ DNA Methyltransferase 1 Activity/Inhibitor Screening Assay Core Kit

Microplate format kit selectively screens DNMT1 activity/inhibition in 3 hours. The selective inhibition of DNMT1 may lead to demethylation and expression of the silenced tumor suppressor genes, and possibly cancer therapeutic agents.

Product Name	Size	Cat. No.
EpiQuik DNMT1 Activity/Inhibitor Screening Assay Core Kit	48 assays	P-3006A-48
	96 assays	P-3006A-96

EpiQuik™ DNA Methyltransferase 3B Activity/Inhibitor Screening Assay Core Kit

Microplate format kit selectively screens DNMT3B activity/inhibition in 3 hours. The selective inhibition of DNMT3B may lead to demethylation and expression of the silenced tumor suppressor genes, and possibly cancer therapeutic agents.

Product Name	Size	Cat. No.
EpiQuik DNMT 3B Activity/Inhibitor Screening Assay Core Kit	48 assays	P-3007A-48
	96 assays	P-3007A-96

Other DNA Methylation Related Assays

EpiQuik™ DNA Demethylase Activity/Inhibition Assay Kit

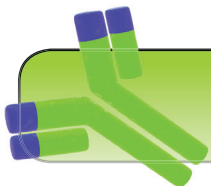
Microplate format kit to measure DNA demethylase activity/inhibition in 3 hours.

Product Name	Size	Cat. No.
EpiQuik DNA Demethylase Activity/Inhibition Assay Kit	48 assays	P-3019-48
	96 assays	P-3019-96

EpiQuik™ MBD2 Binding Activity/Inhibition Assay Kit

Microplate format kit to measure binding activity of MBD2 to methylated DNA in 3 hours.

Product Name	Size	Cat. No.
EpiQuik MBD2 Binding Activity/Inhibition Assay Kit	48 assays	P-3021-48
	96 assays	P-3021-96



Epigentek is your one stop shop for epigenetic-related antibodies, with an extensive collection of over 600 antibodies for epigenetic research and experiments. For a complete list, visit www.epigentek.com/antibodies

Chromatin Immunoprecipitation

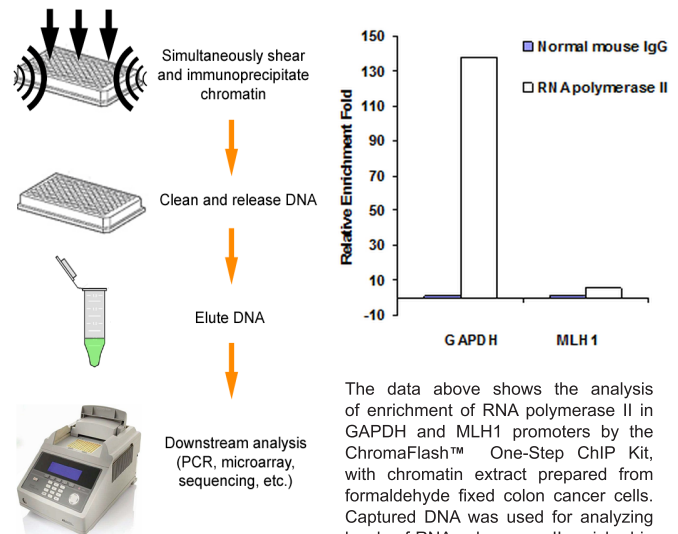
ChromaFlash™ Chromatin Immunoprecipitation Kit

The ChromaFlash™ One-Step CHIP Kit contains all necessary reagents required for carrying out a successful chromatin immunoprecipitation directly from chromatin extracts isolated from mammalian cells or tissues. This kit includes a positive control antibody (RNA polymerase II), a negative control non-immune IgG, and GAPDH primers that can be used as a positive control to demonstrate the efficacy of the kit reagents and protocol. Eluted DNA can be used for various downstream applications such as ChIP-PCR, ChIP-on-chip, and ChIP-seq. The standalone protocol* can be used without the need for the EpiSonic sonication instrument. The kit has the following advantages and features:

- ✓ *The fastest and most convenient ChIP method.* The entire procedure (from intact chromatin sample to ready-for-use DNA) via the accelerated protocol is less than 60 minutes with the actual handling time being less than 10 minutes due to simultaneous processing of chromatin shearing and immunoprecipitation (“One-Step ChIP”). The entire procedure via the alternative standalone protocol is less than 4 hours.
- ✓ *96-well plate format makes the assay flexible.* Either (a) manual with one single reaction each time; or (b) high throughput with 96 reactions each time.
- ✓ *Highly efficient enrichment.* Enrichment ratio of positive to negative control > 120, and an extremely low number of cells required (as low as 10,000 cells per ChIP reaction).
- ✓ *High reproducibility.* Pre-optimized ChIP conditions and, with an EpiSonic Multi-Functional Bioprocessor, digitally acoustic-controlled reaction processing in sealed vials make the ChIP procedure consistent.
- ✓ *Wide downstream analysis compatibility.* Compatible with various downstream analysis workflows including ChIP-PCR, ChIP-on-chip, and ChIP-seq.

*The standalone protocol requires separate chromatin shearing and an additional procedure time of 2-3 hours.

The predecessors EpiQuik™ ChIP Kit and EpiQuik™ Tissue ChIP Kit are also available, except in the United States.



▲ Schematic procedure of the accelerated protocol of the ChromaFlash™ One-Step ChIP Kit.

The data above shows the analysis of enrichment of RNA polymerase II in GAPDH and MLH1 promoters by the ChromaFlash™ One-Step ChIP Kit, with chromatin extract prepared from formaldehyde fixed colon cancer cells. Captured DNA was used for analyzing levels of RNA polymerase II enriched in the GAPDH and MLH1 promoters.

Product Name	Size	Cat. No.
ChromaFlash One-Step ChIP Kit	48 reactions	P-2025-48
	96 reactions	P-2025-96
ChromaFlash One-Step Magnetic ChIP Kit	48 reactions	P-2026-48
	96 reactions	P-2026-96
EpiQuik Chromatin Immunoprecipitation Kit (not available in USA)	48 reactions	P-2002-2
	96 reactions	P-2002-3
EpiQuik Tissue Chromatin Immunoprecipitation Kit (not available in USA)	48 reactions	P-2003-2
	96 reactions	P-2003-3

Plant Chromatin Immunoprecipitation

EpiQuik™ Plant ChIP Kit

Microplate format kit for carrying out chromatin immunoprecipitation from plant cells. 6 hour procedure with columns included for DNA purification, as well as a strip microwell format that makes the assay flexible for either manual or high throughput experiments. Suitable for combining the specificity of immunoprecipitation

with qualitative and quantitative PCR, MS-PCR, DNA sequencing, and Southern blot, as well as DNA microarray.

Product Name	Size	Cat. No.
EpiQuik Plant ChIP Kit	24 reactions	P-2014-24
	48 reactions	P-2014-48

Methyl-Histone & Acetyl-Histone ChIP

EpiQuik™ Chromatin Immunoprecipitation Kits

Chromatin immunoprecipitation (ChIP) offers an advantageous tool for studying protein-DNA interaction. It allows for detecting that a specific protein binds to the specific sequences of a gene in living cells through the combination of PCR (ChIP-PCR), microarray (ChIP-chip), and sequencing (ChIP-Seq). For example, measurement of the amount of methylated histone H3 at lysine 9 (meH3-K9) associated with a specific gene promoter region under various conditions can be achieved through a ChIP-PCR assay, while recruitment of meH3-K9 to the promoters on the genome-wide scale can be detected by ChIP-chip. In particular, ChIP with antibodies directly against modified histones and various transcriptional factors is widely in demand. However, conventional ChIP is time-consuming (2-3 days) with low throughput.

Epigentek provides a series of microplate-based ChIP kits with included acetyl histone or methyl histone antibodies that allows the experimenter to perform chromatin immunoprecipitation at extraordinarily rapid speeds and with consistency. The kits are ready-to-use and provide all the essential components needed to carry out a successful ChIP experiment. The kits are suitable for combining the specificity of immunoprecipitation with qualitative and quantitative PCR, DNA sequencing, and DNA microarray.

- ✓ Extremely fast procedure available, which can be finished within 5 hours.
- ✓ Strip-well microplate format makes the assay flexible: manual or high throughput.
- ✓ Columns for DNA purification are included: save time and reduce labor.

Product Name	Size	Cat. No.
EpiQuik Methyl Histone H3K4 ChIP Kit	24 reactions	P-2007-24
	48 reactions	P-2007-48
EpiQuik Tissue Methyl Histone H3K4 ChIP Kit	24 reactions	P-2009-24
	48 reactions	P-2009-48
EpiQuik Methyl Histone H3K9 ChIP Kit	24 reactions	P-2006-24
	48 reactions	P-2006-48
EpiQuik Tri-Methyl Histone H3K9 ChIP Kit	24 reactions	P-2006T-24
	48 reactions	P-2006T-48
EpiQuik Tissue Methyl Histone H3K9 ChIP Kit	24 reactions	P-2008-24
	48 reactions	P-2008-48
EpiQuik Methyl Histone H3K27 ChIP Kit	24 reactions	P-2015-24
	48 reactions	P-2015-48
EpiQuik Tissue Methyl Histone H3K27 ChIP Kit	24 reactions	P-2016-24
	48 reactions	P-2016-48
EpiQuik Acetyl Histone H3 ChIP Kit	24 reactions	P-2010-24
	48 reactions	P-2010-48
EpiQuik Tissue Acetyl Histone H3 ChIP Kit	24 reactions	P-2012-24
	48 reactions	P-2012-48
EpiQuik Acetyl Histone H4 ChIP Kit	24 reactions	P-2011-24
	48 reactions	P-2011-48
EpiQuik Tissue Acetyl Histone H4 ChIP Kit	24 reactions	P-2013-24
	48 reactions	P-2013-48

Other Protein-DNA Interaction Related Kits

EpiQuik™ Methyl-CpG Binding Domain Protein 2 ChIP Kit

A convenient package of tools that allows one to investigate the *in vivo* binding of MBD2 to methylated DNA in a variety of mammalian cells or tissues. The entire procedure can be completed within 5 hours. It is suitable for combining the specificity of immunoprecipitation with qualitative and quantitative PCR, MS-PCR, DNA sequencing, and southern blot as well as DNA microarray.

Product Name	Size	Cat. No.
EpiQuik Methyl-CpG Binding Domain Protein 2 ChIP Kit	24 reactions	P-2017-24
	48 reactions	P-2017-48
EpiQuik Tissue Methyl-CpG Binding Domain Protein 2 ChIP Kit	24 reactions	P-2018-24
	48 reactions	P-2018-48

EpiQuik™ General Protein-DNA Binding Assay Kit

This microplate format kit investigates protein-DNA interaction efficiently by measuring the transcription factor of DNA binding activity in nuclear extracts. Strip microplate format makes the assay convenient for both manual or high throughput analysis. The entire procedure can be finished within 3 hours and uses no radioactive materials making it easy and safe to handle.

Product Name	Size	Cat. No.
EpiQuik General Protein-DNA Binding Assay Kit (Colorimetric)	96 assays	P-2004-96
EpiQuik General Protein-DNA Binding Assay Kit (Fluorometric)	96 assays	P-2005-96

Histone Methyltransferase Assays

EpiQuik™ Histone Methyltransferase Activity/Inhibition Assay Kits

Histone methyltransferases (HMTs) control or regulate DNA methylation through chromatin-dependent transcription repression or activation, while inhibition of HMTs may lead to expression of the silenced genes. The EpiQuik™ series of HMT assay kits for H3K4, H3K9, and H3K27 replace radioisotopic methods by using a microplate-based, colorimetric procedure to measure HMT activity/inhibition in 3 hours.

Product Name	Size	Cat. No.
EpiQuik Histone Methyltransferase Activity/Inhibition Assay Kit (H3K4)	48 assays	P-3002-1
	96 assays	P-3002-2
EpiQuik Histone Methyltransferase Activity/Inhibition Assay Kit (H3K9)	48 assays	P-3003-1
	96 assays	P-3003-2
EpiQuik Histone Methyltransferase Activity/Inhibition Assay Kit (H3K27)	48 assays	P-3005-48
	96 assays	P-3005-96

Epigenase™ PRMT Methyltransferase (Type II-Specific) Activity/Inhibition Assay Kit

A complete set of optimized buffers and reagents for measuring the activity or inhibition of total type II PRMT using nuclear extracts or purified enzymes, such as PRMT5 and PRMT7, from a broad range of species which includes mammals, plants, fungi, and bacteria. A variety of forms of input samples can be used.

- ✓ 3 hour procedure in a 96 stripwell microplate format allows for either manual or high throughput analysis.
- ✓ Directly measures type II PRMT activity via a straightforward detection of PRMT-converted methylated products.

- ✓ Both cell/tissue extracts and purified type II PRMT can be used, which allows for the detection of inhibitory effects of PRMT5 or PRMT7 inhibitors *in vivo* and *in vitro*.
- ✓ Sensitive detection limit can be as low as 5 ng of purified PRMT5 enzyme.
- ✓ Methylated H4-Arg3 standard is included, allowing for specific activity of type II PRMT to be quantified.

Product Name	Size	Cat. No.
Epigenase PRMT Methyltransferase (Type II-Specific) Activity/Inhibition Assay Kit (Colorimetric)	48 assays	P-3088-48
	96 assays	P-3088-96

Histone LSD1 Demethylase Assays

Epigenase™ LSD1 Demethylase Activity/Inhibition Assay Kit

The Epigenase™ LSD1 Demethylase Activity/Inhibition Assay Kit contains all reagents necessary for a rapid and accurate measurement of LSD1 activity/inhibition.

- ✓ 3 hour procedure in a 96 stripwell microplate format allows for either manual or high throughput analysis.
- ✓ Directly measures LSD1 activity via a straightforward detection of LSD1-converted demethylated products, rather than by-products.
- ✓ Both cell/tissue extracts and purified LSD1 can be used, which allows for the detection of inhibitory effects of LSD1 inhibitors *in vivo* and *in vitro*.
- ✓ Sensitivity is up to 50 times higher than H₂O₂/formaldehyde release-based LSD1 assays, allowing activity to be detected from as low as 2 ng of purified LSD1 enzyme.
- ✓ Demethylated histone standard is included, allowing specific activity of LSD1 to be quantified.
- ✓ Accurate, reliable, and consistent with extremely low background signals.

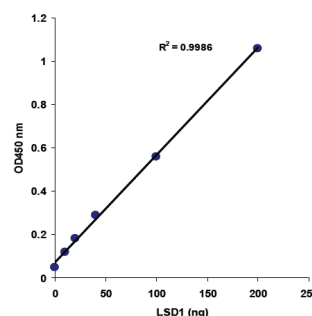


Fig 1 | Demonstration of high sensitivity of LSD1 activity assay achieved by using recombinant LSD1 with Epigenase™ LSD1 Demethylase Activity/Inhibition Assay Kit (Colorimetric).

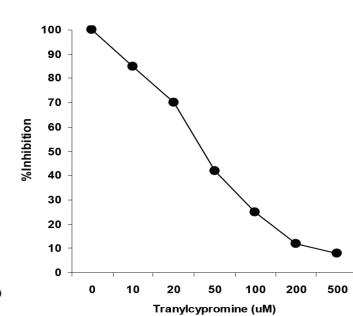


Fig 2 | Demonstration of inhibitory effect of an LSD1 inhibitor detected by the Epigenase™ LSD1 Demethylase Activity/Inhibition Assay Kit (Colorimetric).

Product Name	Size	Cat. No.
Epigenase LSD1 Demethylase Activity/Inhibition Assay Kit (Colorimetric)	48 assays	P-3078-48
	96 assays	P-3078-96
Epigenase LSD1 Demethylase Activity/Inhibition Assay Kit (Fluorometric)	48 assays	P-3079-48
	96 assays	P-3079-96

Histone JmjC Demethylase Assays

Epigenase™ JmjC Demethylase Activity/Inhibition Assay Kits

Epigenetek's histone demethylase activity/inhibition assay kits for the Jumonji domain-containing histone demethylase enzyme family are designed for an easy and fast measurement of JMJD2, JMJD3/UTX, or JARID activity or inhibition. The antibody-based, immunospecific method directly detects JMJD2-, JMJD3/UTX-, or JARID-converted demethylated products, rather than by-products, in a 96 stripwell microplate format.

About Histone Demethylation

Histone demethylation is the removal of methyl groups in modified histone proteins via histone demethylases. The discovery of histone demethylases demonstrates that histone methylation is not a permanent modification, but rather a more dynamic process. One of the most studied families of histone demethylating enzymes is currently Jumonji domain-containing (JmjC) histone demethylases, specifically subfamilies JMJD2, JMJD3/UTX, and JARID. Detection of activity and inhibition of JMJD2, JMJD3/UTX, and JARID would be important in elucidating mechanisms of epigenetic regulation of gene activation and silencing, and benefit cancer diagnostics and therapeutics.

Product Features

The Epigenase™ assay kits for JMJD2, JMJD3/UTX, and JARID demethylase activity or inhibition contain all the reagents necessary for the measurement of JMJD2, JMJD3/UTX, or JARID activity/inhibition. In this assay, a tri-methylated histone H3K9 or H3K4 substrate is stably coated onto microplate wells. Active JMJD2s, JMJD3/UTXs, or JARIDs bind to the substrate and remove methyl groups from the substrate. The JMJD2-, JMJD3/UTX-, or JARID-demethylated products can be recognized with a specific antibody. The ratio or amount of demethylated products, which is proportional to enzyme activity, can then be colorimetrically or fluorometrically measured by reading the absorbance or fluorescence in a microplate reader. The activity of the JMJD2, JMJD3/UTX, or JARID enzyme is proportional to the optical density or fluorescent intensity measured.

- ✓ 3 hour procedure in a 96 strip-well microplate format allows for either manual or high throughput analysis.
- ✓ Directly measures JMJD2, JMJD3/UTX, or JARID activity via a straightforward detection of JMJD2-, JMJD3/UTX- or JARID-converted demethylated products, rather than by-products.
- ✓ Cell/tissue extracts containing JMJD2, JMJD3/UTX, or JARID demethylases, or purified JMJD2, JMJD3/UTX, or JARID proteins can be used, which allows for the detection of inhibitory effects of JMJD2 or JARID inhibitors *in vivo* and *in vitro*.
- ✓ Sensitivity is up to 2,000 times higher than formaldehyde release-based JMJD2, JMJD3/UTX, or JARID assays, allowing activity to be detected from as low as 5 ng of purified JMJD2, JMJD3/UTX, or JARID enzymes.
- ✓ Demethylated histone standard is included, allowing specific activity of JMJD2, JMJD3/UTX, or JARID to be quantified.
- ✓ Accurate, reliable, and consistent with extremely low background signals.

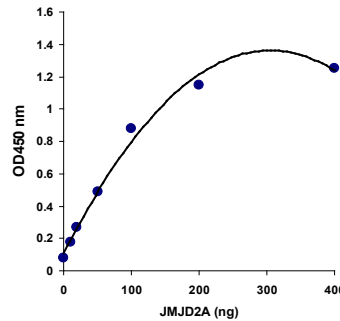


Fig 1 | Demonstration of high sensitivity of a JMJD2 activity assay achieved by using a recombinant enzyme of JMJD2 with the Epigenase™ JMJD2 Demethylase Activity/Inhibition Assay Kit (Colorimetric) (Cat. No. P-3080).

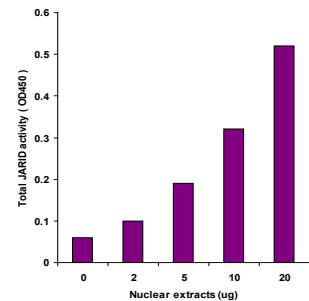
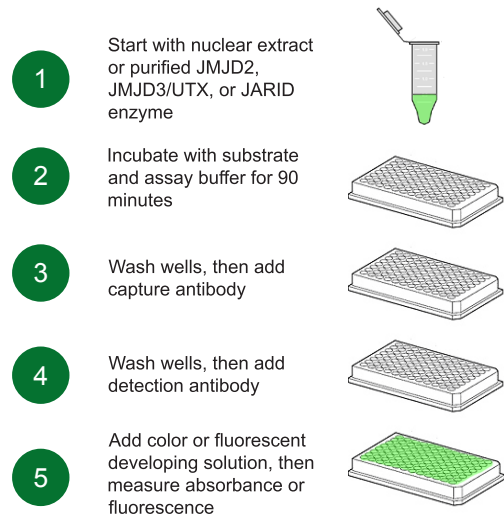


Fig 2 | Demonstration of high sensitivity of a JARID activity assay achieved by using the Epigenase™ JARID Demethylase Activity/Inhibition Assay Kit (Colorimetric) (Cat. No. P-3082) with A549 nuclear extracts.



Product Name	Size	Cat. No.
Epigenase JMJD2 Demethylase Activity/Inhibition Assay Kit (Colorimetric)	48 assays	P-3080-48
	96 assays	P-3080-96
Epigenase JMJD2 Demethylase Activity/Inhibition Assay Kit (Fluorometric)	48 assays	P-3081-48
	96 assays	P-3081-96
Epigenase JARID Demethylase Activity/Inhibition Assay Kit (Colorimetric)	48 assays	P-3082-48
	96 assays	P-3082-96
Epigenase JARID Demethylase Activity/Inhibition Assay Kit (Fluorometric)	48 assays	P-3083-48
	96 assays	P-3083-96
Epigenase JMJD3/UTX Demethylase Activity/Inhibition Assay Kit (Colorimetric)	48 assays	P-3084-48
	96 assays	P-3084-96
Epigenase JMJD3/UTX Demethylase Activity/Inhibition Assay Kit (Fluorometric)	48 assays	P-3085-48
	96 assays	P-3085-96

Histone Methylation Quantification

EpiQuik™ Total Histone H3 Quantification Kit

This ELISA-like kit quantifies levels of all histone H3 proteins independent of their modified states, and can be used for normalizing the modified histone H3 content of samples when run in parallel with Epigentek's histone modification quantification kit series. A 2.5 hour procedure for use with human, mouse, and rat samples, including from fresh and frozen tissues, and cultured adherent and suspension cells.

Product Name	Size	Cat. No.
EpiQuik Total Histone H3 Quantification Kit (Colorimetric)	48 assays	P-3062-48
	96 assays	P-3062-96
EpiQuik Total Histone H3 Quantification Kit (Fluorometric)	48 assays	P-3063-48
	96 assays	P-3063-96

EpiQuik™ In Situ Histone Methylation Assay Kits

These microplate format kits specifically measure modified histone H3 methylation *in situ* using cultured adherent cells within 3 hours.

Product Name	Size	Cat. No.
EpiQuik In Situ Histone H3K4 Methylation Assay Kit	96 assays	P-3015-096
	2x96 assays	P-3015-192
EpiQuik In Situ Histone H3K9 Methylation Assay Kit	96 assays	P-3016-096
	2x96 assays	P-3016-192
EpiQuik In Situ Histone H3K27 Tri-Methylation Assay Kit	96 assays	P-3014T-096
	2x96 assays	P-3014T-192

Quantification of Modified Histone Methylation

EpiQuik™ Global Histone Methylation Quantification Kits

Quantitative detection of global histone methylation could provide useful information for better understanding of epigenetic regulation of gene activation/repression and for developing HMT-targeted drugs. These ELISA-like kits are available in both colorimetric and fluorometric versions as a complete series for both H3 and H4 at all lysines. By using the EpiQuik™ kits for quantifying methylated or acetylated histone H3 and H4, you are guaranteed the following features:

- ✓ *Speed* - 2 hour 30 minute procedure
- ✓ *Convenience* - No radioactivity, electrophoresis, or chromatography. Control is conveniently included for measurement of methylated histones.
- ✓ *Sensitivity* - Specifically capture methylated histones with the detection limit as low as 2 ng/well colorimetrically and 0.2 ng/well fluorometrically. Detection range from 20 ng to 5 µg/well of histone extracts.
- ✓ *Flexibility* - Strip microplate format allows for either manual or high throughput assays.
- ✓ *Reliability* - Consistent assay conditions and superior results.

Histone	Methyl Group	Detection Type	Size	Cat. No.
H3K4	Mono-Methyl	Colorimetric	48 assays	P-3024-48
			96 assays	P-3024-96
H3K4	Mono-Methyl	Fluorometric	48 assays	P-3025-48
			96 assays	P-3025-96
H3K4	Di-Methyl	Colorimetric	48 assays	P-3022-48
			96 assays	P-3022-96
H3K4	Di-Methyl	Fluorometric	48 assays	P-3023-48
			96 assays	P-3023-96
H3K4	Tri-Methyl	Colorimetric	48 assays	P-3026-48
			96 assays	P-3026-96
H3K4	Tri-Methyl	Fluorometric	48 assays	P-3027-48
			96 assays	P-3027-96
H3K4	Pan-Methyl	Colorimetric	96 assays	P-3028-96
H3K4	Pan-Methyl	Fluorometric	96 assays	P-3029-96

Histone	Methyl Group	Detection Type	Size	Cat. No.
H3K9	Mono-Methyl	Colorimetric	48 assays	P-3030-48
			96 assays	P-3030-96
H3K9	Mono-Methyl	Fluorometric	48 assays	P-3031-48
			96 assays	P-3031-96
H3K9	Di-Methyl	Colorimetric	48 assays	P-3032-48
			96 assays	P-3032-96
H3K9	Di-Methyl	Fluorometric	48 assays	P-3033-48
			96 assays	P-3033-96
H3K9	Tri-Methyl	Colorimetric	48 assays	P-3034-48
			96 assays	P-3034-96
H3K9	Tri-Methyl	Fluorometric	48 assays	P-3035-48
			96 assays	P-3035-96
H3K9	Pan-Methyl	Colorimetric	96 assays	P-3036-96
H3K9	Pan-Methyl	Fluorometric	96 assays	P-3037-96

Histone	Methyl Group	Detection Type	Size	Cat. No.
H3K27	Mono-Methyl	Colorimetric	48 assays	P-3038-48
			96 assays	P-3038-96
H3K27	Mono-Methyl	Fluorometric	48 assays	P-3039-48
			96 assays	P-3039-96
H3K27	Di-Methyl	Colorimetric	48 assays	P-3040-48
			96 assays	P-3040-96
H3K27	Di-Methyl	Fluorometric	48 assays	P-3041-48
			96 assays	P-3041-96
H3K27	Tri-Methyl	Colorimetric	48 assays	P-3042-48
			96 assays	P-3042-96
H3K27	Tri-Methyl	Fluorometric	48 assays	P-3043-48
			96 assays	P-3043-96
H3K27	Pan-Methyl	Colorimetric	96 assays	P-3044-96
H3K27	Pan-Methyl	Fluorometric	96 assays	P-3045-96
H3K36	Mono-Methyl	Colorimetric	48 assays	P-3046-48
			96 assays	P-3046-96
H3K36	Mono-Methyl	Fluorometric	48 assays	P-3047-48
			96 assays	P-3047-96
H3K36	Di-Methyl	Colorimetric	48 assays	P-3048-48
			96 assays	P-3048-96
H3K36	Di-Methyl	Fluorometric	48 assays	P-3049-48
			96 assays	P-3049-96
H3K36	Tri-Methyl	Colorimetric	48 assays	P-3050-48
			96 assays	P-3050-96
H3K36	Tri-Methyl	Fluorometric	48 assays	P-3051-48
			96 assays	P-3051-96
H3K36	Pan-Methyl	Colorimetric	96 assays	P-3052-96
H3K36	Pan-Methyl	Fluorometric	96 assays	P-3053-96

Histone	Methyl Group	Detection Type	Size	Cat. No.
H3K79	Mono-Methyl	Colorimetric	48 assays	P-3054-48
			96 assays	P-3054-96
H3K79	Mono-Methyl	Fluorometric	48 assays	P-3055-48
			96 assays	P-3055-96
H3K79	Di-Methyl	Colorimetric	48 assays	P-3056-48
			96 assays	P-3056-96
H3K79	Di-Methyl	Fluorometric	48 assays	P-3057-48
			96 assays	P-3057-96
H3K79	Tri-Methyl	Colorimetric	48 assays	P-3058-48
			96 assays	P-3058-96
H3K79	Tri-Methyl	Fluorometric	48 assays	P-3059-48
			96 assays	P-3059-96
H3K79	Pan-Methyl	Colorimetric	96 assays	P-3060-96
H3K79	Pan-Methyl	Fluorometric	96 assays	P-3061-96
H4K20	Mono-Methyl	Colorimetric	48 assays	P-3064-48
			96 assays	P-3064-96
H4K20	Mono-Methyl	Fluorometric	48 assays	P-3065-48
			96 assays	P-3065-96
H4K20	Di-Methyl	Colorimetric	48 assays	P-3066-48
			96 assays	P-3066-96
H4K20	Di-Methyl	Fluorometric	48 assays	P-3067-48
			96 assays	P-3067-96
H4K20	Tri-Methyl	Colorimetric	48 assays	P-3068-48
			96 assays	P-3068-96
H4K20	Tri-Methyl	Fluorometric	48 assays	P-3069-48
			96 assays	P-3069-96
H4K20	Pan-Methyl	Colorimetric	96 assays	P-3070-96
H4K20	Pan-Methyl	Fluorometric	96 assays	P-3071-96

EpiQuik™ Global Di-Methyl Histone H4R3 Quantification Kit

This product is a complete set of optimized buffers and reagents to colorimetrically quantify global histone H4 arginine 3 di-methylation from a broad range of species such as mammals, plants, fungi, and bacteria, in a variety of forms including cultured cells and fresh tissues.

- ✓ Quick and efficient procedure, which can be finished within 3.5 hours.
- ✓ Innovative colorimetric assay without the need for radioactivity, electrophoresis, or chromatography.

- ✓ Specifically captures symmetric di-methylated H4R3 with a detection limit as low as 0.5 ng/well and a detection range from 100 ng to 2 µg/well of histone extracts.
- ✓ An assay control is conveniently included for the quantification of di-methylated H4R3.
- ✓ Simple, reliable, and consistent assay conditions.
- ✓ Strip-well microplate format makes the assay flexible: manual or high throughput.

Product Name	Size	Cat. No.
EpiQuik Global Di-Methyl Histone H4R3 Quantification Kit (Colorimetric)	48 assays	P-3090-48
	96 assays	P-3090-96

Histone Deacetylase (HDAC) Assays

EpiQuik™ HDACs 1-11 Assay Kits

Histone deacetylases (HDACs) play a critical role in transcriptional repression of gene expression in eukaryotic cells by catalyzing the hydrolytic removal of acetyl groups from histone lysine residues.

Epigenetek offers a complete line of kits for individual measurement of HDACs 1-11. Each of these kits contain an optimized set of buffers and reagents to colorimetrically measure the total amount of HDAC proteins quantitatively, through an ELISA-like method, from fresh tissue and cultured cells of human or mouse, without the need for electrophoresis and transfer processes.

In an assay with these kits, the unique HDAC affinity substrate is stably coated on the strip well. The sample is added into the well and HDAC proteins contained in the sample bind to the substrate. The bound HDAC can be recognized with an HDAC-specific antibody and can be colorimetrically quantified through an ELISA-like reaction. After reading the optical density on a microplate spectrophotometer at a wavelength of 450 nm, the amount of HDAC will be proportional to the intensity of the color development.

- ✓ Very fast procedure, which can be finished within 4 hours.
- ✓ Innovative colorimetric assay to quantitatively measure HDAC protein amounts without the need for electrophoresis.
- ✓ High sensitivity and specificity -- HDAC-specific detection with a detection limit as low as 0.2 ng of HDAC protein.
- ✓ Strip-well microplate format makes the assay flexible: manual or high throughput analysis.
- ✓ HDAC control is included, which allows for the HDAC protein amount of the sample to be properly quantified.
- ✓ Simple, reliable, and consistent assay conditions.

Product Name	Size	Cat. No.
EpiQuik HDAC1 Assay Kit	48 reactions	P-4005-48
	96 reactions	P-4005-96
EpiQuik HDAC2 Assay Kit	48 reactions	P-4006-48
	96 reactions	P-4006-96
EpiQuik HDAC3 Assay Kit	48 reactions	P-4040-48
	96 reactions	P-4040-96
EpiQuik HDAC4 Assay Kit	48 reactions	P-4042-48
	96 reactions	P-4042-96
EpiQuik HDAC5 Assay Kit	48 reactions	P-4044-48
	96 reactions	P-4044-96
EpiQuik HDAC6 Assay Kit	48 reactions	P-4046-48
	96 reactions	P-4046-48
EpiQuik HDAC7 Assay Kit	48 reactions	P-4048-48
	96 reactions	P-4048-96
EpiQuik HDAC8 Assay Kit	48 reactions	P-4007-48
	96 reactions	P-4007-96
EpiQuik HDAC9 Assay Kit	48 reactions	P-4050-48
	96 reactions	P-4050-96
EpiQuik HDAC10 Assay Kit	48 reactions	P-4052-48
	96 reactions	P-4052-96
EpiQuik HDAC11 Assay Kit	48 reactions	P-4054-48
	96 reactions	P-4054-96

Epigenase™ HDAC Activity/Inhibition Direct Assay Kit

This product uses an innovative assay method for measuring the activity or inhibition of total HDAC enzymes in nuclear extracts or purified HDAC isoforms (HDACs 1-11) from a broad range of species such as mammals, plants, fungi, and bacteria, and in a variety of forms including, but not limited to, cultured cells and fresh and frozen tissues. Activity can be detected from as low as 0.5 ng of purified HDAC enzyme.

Product Name	Size	Cat. No.
Epigenase HDAC Activity/Inhibition Direct Assay Kit (Colorimetric)	48 assays	P-4034-48
	96 assays	P-4034-96
Epigenase HDAC Activity/Inhibition Direct Assay Kit (Fluorometric)	48 assays	P-4035-48
	96 assays	P-4035-96

Epigenase™ Universal SIRT Activity/Inhibition Assay Kit

A complete set of optimized buffers and reagents for measuring the activity/inhibition of total SIRT enzymes using nuclear extracts or purified SIRT isoforms (SIRTs 1-7) from a broad range of species such as mammals, plants, fungi, and bacteria, and in a variety of forms including, but not limited to, cultured cells and fresh and frozen tissues. The unique kit composition enables background signals to be very low, which allows the assay to be accurate, sensitive, reliable, and consistent.

Product Name	Size	Cat. No.
Epigenase Universal SIRT Activity/Inhibition Assay Kit (Colorimetric)	48 assays	P-4036-48
	96 assays	P-4036-96
Epigenase Universal SIRT Activity/Inhibition Assay Kit (Fluorometric)	48 assays	P-4037-48
	96 assays	P-4037-96

Histone Acetyltransferase (HAT) Assays

EpiQuik™ HAT Activity/Inhibition Assay Kit

Histone acetyltransferases (HATs) play a critical role in transcriptional activation of gene expression in eukaryotic cells through modifying N-terminal lysine residues of histones by the addition of an acetyl group from acetyl coenzyme A. HAT activation or inhibition displays significant effects on several diseases ranging from neurodegenerative disorders to cancer. The impact of HATs on cellular physiology and disease would benefit from the identification of specific pharmacological inhibitors.

Epigentek's EpiQuik HAT Activity/Inhibition Assay Kit uses an innovative colorimetric assay method on a 96-well plate format to directly and accurately measure HAT activity/inhibition by quantifying the amount of acetylated histone substrate, thereby avoiding any false inhibitory effect on HATs. The entire procedure can be completed within 3 hours.

Product Name	Size	Cat. No.
EpiQuik HAT Activity/Inhibition Assay Kit	48 assays	P-4003-48
	96 assays	P-4003-96

Histone Acetylation Quantification

EpiQuik™ Global Histone Acetylation Quantification Kits

Epigentek's ELISA-based histone acetylation quantification kits can globally measure total histone H3 or H4 acetylation levels in addition to acetylation levels of modified histones at various lysines.

- ✓ Quick and efficient procedure - finish within 2 to 3 hours.
- ✓ Innovative colorimetric or fluorometric versions without the need for radioactivity, electrophoresis, or chromatography.
- ✓ Excellent detection sensitivity of histone acetylation.
- ✓ Controls are conveniently included for the quantification of the amount of acetylated histones.
- ✓ Strip microplate format makes the assay flexible: manual or high throughput.

Histone	Detection Type	Size	Cat. No.
Total H3	Colorimetric	48 assays	P-4030-48
		96 assays	P-4030-96
Total H3	Fluorometric	48 assays	P-4031-48
		96 assays	P-4031-96
Total H4	Colorimetric	48 assays	P-4032-48
		96 assays	P-4032-96
Total H4	Fluorometric	48 assays	P-4033-48
		96 assays	P-4033-96
H3K9	Colorimetric	48 assays	P-4010-48
		96 assays	P-4010-96
H3K9	Fluorometric	48 assays	P-4011-48
		96 assays	P-4011-96
In Situ H3K9	Colorimetric	96 assays	P-4004-096
		2x96 assays	P-4004-192
H3K14	Colorimetric	48 assays	P-4012-48
		96 assays	P-4012-96

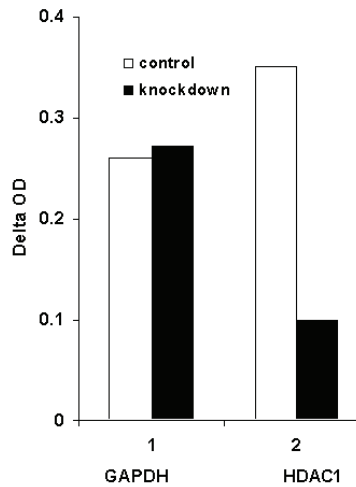
Histone	Detection Type	Size	Cat. No.
H3K14	Fluorometric	48 assays	P-4013-48
		96 assays	P-4013-96
H3K18	Colorimetric	48 assays	P-4014-48
		96 assays	P-4014-96
H3K18	Fluorometric	48 assays	P-4015-48
		96 assays	P-4015-96
H3K23	Colorimetric	48 assays	P-4016-48
		96 assays	P-4016-96
H3K23	Fluorometric	48 assays	P-4017-48
		96 assays	P-4017-96
H3K36	Colorimetric	48 assays	P-4018-48
		96 assays	P-4018-96
H3K36	Fluorometric	48 assays	P-4019-48
		96 assays	P-4019-96
H3K56	Colorimetric	48 assays	P-4020-48
		96 assays	P-4020-96
H3K56	Fluorometric	48 assays	P-4021-48
		96 assays	P-4021-96
H4K5	Colorimetric	48 assays	P-4022-48
		96 assays	P-4022-96
H4K5	Fluorometric	48 assays	P-4023-48
		96 assays	P-4023-96
H4K8	Colorimetric	48 assays	P-4024-48
		96 assays	P-4024-96
H4K8	Fluorometric	48 assays	P-4025-48
		96 assays	P-4025-96
H4K12	Colorimetric	48 assays	P-4028-48
		96 assays	P-4028-96
H4K12	Fluorometric	48 assays	P-4029-48
		96 assays	P-4029-96
H4K16	Colorimetric	48 assays	P-4026-48
		96 assays	P-4026-96
H4K16	Fluorometric	48 assays	P-4027-48
		96 assays	P-4027-96

General Gene Knockdown Quantification

QuantiSir™ General Gene Knockdown Quantification Kit

Targeted gene knockdown using small interfering RNA (siRNA) or antisense oligonucleotides has been a valuable technology for studying gene function. Gene knockdown leads to a reduction in miRNAs and subsequently protein expression. Our kit uses a unique procedure and composition to directly quantify gene knockdown effects at the protein level in various mammalian cell or tissue lysates. This kit provides a simple and rapid tool for measuring levels of gene expression/silencing.

The *QuantiSir™ General Gene Knockdown Quantification Kit* is part of Epigentek's advanced gene knockdown assay system to quantitate gene knockdown induced by siRNA or antisense oligonucleotides at the protein level in cultured cells or tissues. This ELISA-like kit offers a significantly more convenient process than traditional methods such as Northern Blot, quantitative RT-PCR, and Western Blot. The kit addresses and corrects traditional problems, such as the decrease in the amount of a specific mRNA not typically correlating well with protein levels present in the cell, and the lack of ability to discriminate between samples in which the differences in protein levels are minimal.



Quantification of HDAC1 knock-down. MCF-7 cells were treated or untreated with HDAC1 siRNA. Protein extracts were prepared and used for detection of HDAC1 protein level.

Product Name	Size	Cat. No.
QuantiSir General Gene Knockdown Quantification Kit	48 assays	P-5001-48
	96 assays	P-5001-96

Specific Gene Knockdown Quantification

QuantiSir™ Specific Gene Knockdown Quantification Kits

The *QuantiSir™ Gene Knockdown Quantification Kit* is also available specifically for 387 different genes in 8 different applications. Applications include:

- Epigenetic Regulators**
- DNA Damage/Repair**
- Cell Death/Apoptosis**
- Cell Cycle Regulation**
- Cell Proliferation**
- Tumor Suppressors/Oncogenes**
- Signal Transduction**
- Transcription Factors**

* For a complete list of available genes, please visit our website at www.epigentek.com. When ordering specific gene knockdown quantification kits, please specify which gene. The variable x in the catalog numbers for *QuantiSir Specific Gene Knockdown Quantification Kits* refers to the specific gene for the kit.

Product Name	Size	Cat. No.
QuantiSir Specific Gene Knockdown Quantification Kit for Epigenetic Regulators	96 assays	P-5002-x-96*
QuantiSir Specific Gene Knockdown Quantification Kit for DNA Damage/Repair	96 assays	P-5003-x-96*
QuantiSir Specific Gene Knockdown Quantification Kit for Cell Death/Apoptosis	96 assays	P-5004-x-96*
QuantiSir Specific Gene Knockdown Quantification Kit for Cell Cycle Regulation	96 assays	P-5005-x-96*
QuantiSir Specific Gene Knockdown Quantification Kit for Cell Proliferation	96 assays	P-5006-x-96*
QuantiSir Specific Gene Knockdown Quantification Kit for Tumor Suppressors/Oncogenes	96 assays	P-5007-x-96*
QuantiSir Specific Gene Knockdown Quantification Kit for Signal Transduction	96 assays	P-5008-x-96*
QuantiSir Specific Gene Knockdown Quantification Kit for Transcription Factors	96 assays	P-5009-x-96*



We also offer **epigenetic drug discovery services** with many screening targets including DNA methyltransferases, histone deacetyltransferases, histone methylation, histone acetylases, DNA methylation, and phosphorylation. Learn more at www.epigentek.com/discover

DNA Damage & Repair Assays

EpiQuik™ Superoxide Dismutase Activity/Inhibition Assay Kit

High throughput microplate format kit to colorimetrically measure superoxide dismutase (SOD) activity within 60 minutes.

Product Name	Size	Cat. No.
EpiQuik Superoxide Dismutase Activity/Inhibition Assay Kit	96 assays	OP-0001-1
	2x96 assays	OP-0001-2
	5x96 assays	OP-0001-3

EpiQuik™ In Situ DNA Damage Assay Kit

High throughput microplate format kit to colorimetrically measure DNA damage or apoptosis *in situ* through phospho H2AX^{Ser139} detection using cultured cells without the need to prepare cell lysates, all within 3 hours.

Product Name	Size	Cat. No.
EpiQuik In Situ DNA Damage Assay Kit	96 assays	P-6001-096
	2x96 assays	P-6001-192

CytoX-Red™ Cell Proliferation/Cytotoxicity Assay Kit

Measures cell viability, proliferation, and cytotoxicity in adherent or monolayer cells by quantifying total protein contents.

Product Name	Size	Cat. No.
CytoX-Red Cell Proliferation/Cytotoxicity Assay Kit	3x96 assays	OP-0004-1
	5x96 assays	OP-0004-2
	10x96 assays	OP-0004-3

CytoX-Violet™ Cell Proliferation/Cytotoxicity Assay Kit

Measures cell viability, proliferation, and cytotoxicity in adherent or suspension cells by measuring the activity of cellular dehydrogenases.

Product Name	Size	Cat. No.
CytoX-Violet Cell Proliferation/Cytotoxicity Assay Kit	5x96 assays	OP-0005-1
	10x96 assays	OP-0005-2
	20x96 assays	OP-0005-3

8-OHdG Oxidative Stress Quantification

EpiQuik™ 8-OHdG DNA Damage Quantification Direct Kit

This product is a complete set of optimized buffers and reagents to directly quantify 8-hydroxy-2'-deoxyguanosine (8-OHdG or 8-oxo-dG) in DNA samples, in a high throughput microplate-based format. In this assay, DNA is bound to strip wells that are specifically treated to have a high DNA affinity. 8-OHdG is detected using capture and detection antibodies. The detected signal is enhanced and then quantified by reading the absorbance or fluorescence in a microplate spectrophotometer.

- ✓ The entire procedure can be completed within 3 hours and 45 minutes.
- ✓ The detection limit can be as low as 2 pg of 8-OHdG.
- ✓ Direct detection of 8-OHdG using intact DNA, which eliminates interference from high molecular weight compounds such as carbohydrates and proteins.
- ✓ High specificity by detecting only 8-OHdG without cross-reactivity to 8-OHdG analogues.

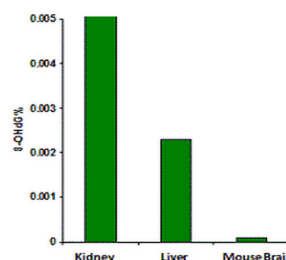


Fig 1 | Percentage of 8-OHdG in different tissues measured with the EpiQuik™ 8-OHdG DNA Damage Quantification Direct Kit.

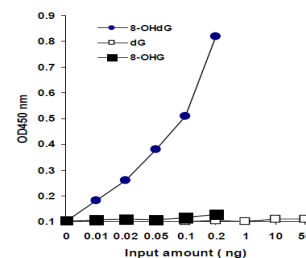


Fig 2 | Oligos containing 8-OHdG, 8-OHG, or only dG were added into the assay wells at different concentrations and then measured with the EpiQuik™ 8-OHdG DNA Damage Quantification Direct Kit.

Product Name	Size	Cat. No.
EpiQuik 8-OHdG DNA Damage Quantification Direct Kit (Colorimetric)	48 assays	P-6003-48
	96 assays	P-6003-96
EpiQuik 8-OHdG DNA Damage Quantification Direct Kit (Fluorometric)	48 assays	P-6004-48
	96 assays	P-6004-96

Phosphorylation Assays

EpiQuik™ Global Histone H3 Phosphorylation Assay Kits

The EpiQuik Global Histone H3 Phosphorylation Assay Kits are designed for measuring global histone H3 phosphorylation at ser10 and ser28. The kits are ready-to-use and provide all the essential components needed for specifically measuring global histone H3 phosphorylation at ser28 or ser10 using a variety of mammalian cells (human, mouse, etc.), including fresh and frozen tissues, and cultured adherent and suspension cells. In an assay with these kits, the phosphorylated histone H3 is captured to the strip wells coated with an anti-phospho histone H3 (ser10 or ser28) antibody. The captured phospho histone H3 can then be detected with a labeled detection antibody, followed by a color development reagent. The ratio of phospho histone H3 (ser10 or ser28) is proportional to the intensity of absorbance. The absolute amount of phospho histone H3 (ser10 or ser28) can be quantitated by being compared to the standard control.

- ✓ Quick and efficient procedure, which can be finished within 3 hours.
- ✓ Innovative assay that eliminates the need for radioactivity, electrophoresis, or chromatography.

- ✓ Specifically captures phospho histone H3 (ser10 or ser28) with a detection limit as low as 2 ng/well.
- ✓ The control is conveniently included for the quantification of phosphorylated histone H3 (ser10 or ser28).
- ✓ Strip microplate format makes the assay flexible: manual or high throughput.
- ✓ Simple, reliable, and consistent assay conditions.

Product Name	Size	Cat. No.
EpiQuik In Situ Histone H3 Phosphorylation (Ser10) Assay Kit	96 assays	P-7001-96
EpiQuik Global Histone H3 Phosphorylation (Ser10) Assay Kit (Colorimetric)	48 assays 96 assays	P-7002-48 P-7002-96
EpiQuik Global Histone H3 Phosphorylation (Ser10) Assay Kit (Fluorometric)	48 assays 96 assays	P-7003-48 P-7003-96
EpiQuik Global Histone H3 Phosphorylation (Ser28) Assay Kit (Colorimetric)	48 assays 96 assays	P-7004-48 P-7004-96
EpiQuik Global Histone H3 Phosphorylation (Ser28) Assay Kit (Fluorometric)	48 assays 96 assays	P-7005-48 P-7005-96

Sumoylation Assays

EpiQuik™ In Vivo Universal Protein Sumoylation Assay Kit

High throughput microplate format kit to colorimetrically measure *in vivo* protein sumoylation.

- ✓ Fast procedure, which can be finished within 5 hours.
- ✓ One-step colorimetric assay without the need for affinity chromatography or Western blot.
- ✓ Flexible antibody choice allows the detection of sumoylation of multiple target proteins simultaneously.
- ✓ Included SUMO protein acts as a positive control and allows protein sumoylation to be quantified reliably.
- ✓ Strip microplate format makes the assay flexible: manual or high throughput analysis.

Product Name	Size	Cat. No.
EpiQuik In Vivo Universal Protein Sumoylation Assay Kit	48 assays 96 assays	P-8001-48 P-8001-96

EpiQuik™ In Vivo HDAC1 Sumoylation Assay Kit

High throughput microplate format kit to colorimetrically measure *in vivo* HDAC1 sumoylation from multiple mammalian cells or tissues, including human, mouse, and rat samples.

- ✓ Fast procedure, which can be finished within 3 hours.
- ✓ One-step colorimetric assay without the need for affinity chromatography or Western blot.
- ✓ Included SUMO protein as the positive control allows HDAC1 sumoylation to be quantified.
- ✓ Strip microplate format makes the assay flexible: manual or high throughput analysis.

Product Name	Size	Cat. No.
EpiQuik In Vivo HDAC1 Sumoylation Assay Kit	48 assays 96 assays	P-8002-48 P-8002-96

DNA Preparation

FitAmp™ DNA Isolation Kit Series

Epigentek's series of DNA isolation kits can be used with many different sample sources, with emphasis on convenience, speed, and reliability. The kits are designed to work optimally with Epigentek's main assay kits that require DNA.

Product Name	Size	Cat. No.
FitAmp General Tissue Section DNA Isolation Kit	50 samples	P-1003-1
	100 samples	P-1003-2
FitAmp Plasma/Serum DNA Isolation Kit	50 samples	P-1004-1
	100 samples	P-1004-2
FitAmp Gel DNA Isolation Kit	50 samples	P-1007-1
	100 samples	P-1007-2
FitAmp Paraffin Tissue Section DNA Isolation Kit	50 samples	P-1009-1
	100 samples	P-1009-2
FitAmp Urine DNA Isolation Kit	50 samples	P-1017-050
	100 samples	P-1017-100
FitAmp Blood and Cultured Cell DNA Extraction Kit	50 samples	P-1018-050
	100 samples	P-1018-100

FitAmp™ DNA Quantification Kit Series

Epigentek's series of DNA quantification kits can be used for quantitatively measuring double stranded DNA or circulating DNA.

Product Name	Size	Cat. No.
FitAmp General DNA Quantification Kit	48 assays	P-1020-48
	96 assays	P-1020-96
FitAmp Circulating DNA Quantification Kit	48 assays	P-1012-1
	96 assays	P-1012-2

EpiQuik™ One Step DNA Hydrolysis Kit

Rapidly hydrolyze DNA to deoxynucleosides in a single incubation in as little as 1 hour using our proprietary enzymatic DNA digestion solution. After treatment with the DNA digestion buffer, DNA is easily digested into single nucleosides without phosphate groups.

Product Name	Size	Cat. No.
EpiQuik One-Step DNA Hydrolysis Kit	96 samples	P-1023-96

DNA Concentrator Kit

Efficiently concentrate DNA within just 2 minutes from various DNA samples with low concentration of DNA including those from microdissection samples, paraffin-embedded tissues, restriction enzyme digestions, PCR reactions, and home-made minipreps.

Product Name	Size	Cat. No.
DNA Concentrator Kit	50 samples	P-1006-1
	100 samples	P-1006-2

Methylamp™ Universal Methylated DNA Preparation Kit

Generate and purify methylated DNA at CpG sites as a methylation-positive control from various sources including genomic DNA, plasmid DNA, and oligonucleotides, for use in methylation studies.

Product Name	Size	Cat. No.
Methylamp Universal Methylated DNA Preparation Kit	40 µg	P-1019-1

TuMinute™ PCR Clean-Up Kit

Efficiently clean up PCR products from various sources including conventional or real time thermal cycling PCR and isothermal gene amplification (PCR) in just 2 minutes.

Product Name	Size	Cat. No.
TuMinute PCR Clean-Up Kit	50 samples	P-1005-1
	100 samples	P-1005-2

Methylamp™ PCR Enhancer

Enhances specificity and yield of PCR amplification including methylation-specific PCR amplification. Useful for enabling an amplification that had previously failed or for reducing problematic PCR artifacts by decreasing formation of secondary structures in the GC region.

Product Name	Size	Cat. No.
Methylamp PCR Enhancer	400 reactions	R-1002

Histone Protein Preparation

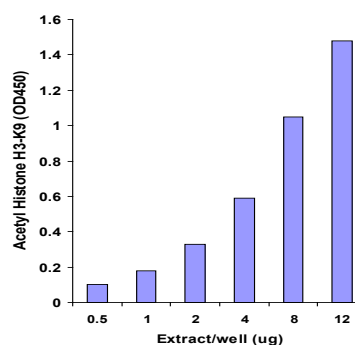
EpiQuik™ Total Histone Extraction Kit

This product is a complete set of reagents for extracting total core histones from mammalian cells or tissues in just 60 minutes. The post-translational modifications in the histone extracts are kept intact and thus can be used with Epigentek's histone modification assay kits or in a variety of downstream applications for histone acetylation, methylation, phosphorylation, and sumoylation.

This product allows for a minimal amount of starting material, as low as 10^5 cells or 1 mg of tissue. The yield of total histone proteins extracted with this product can be up to 400 μ g per standard extraction using 10^7 cells or 100 mg of tissue.

The kit has the following features:

- ✓ Complete toolset containing all required reagents.
- ✓ Pre-optimized and simple 1 hour protocol.
- ✓ Standardized procedure for reproducible results.
- ✓ Extracts a high yield of total core histones.
- ✓ Post-translational modifications are kept intact.



Histone extracts were prepared from MCF-7 cells using the EpiQuik Total Histone Extraction Kit. Acetyl histone H3-K9 was then quantified using the EpiQuik Global Acetylated Histone H3-K9 Quantification Kit (Fluorometric) (Cat #P-4011).

Product Name	Size	Cat. No.
EpiQuik Total Histone Extraction Kit	100 extractions	OP-0006-100

Nuclear Protein Preparation

EpiQuik™ Nuclear Extraction Kit

This product is a complete set of reagents for extracting nuclear proteins from mammalian cells or tissues in just 60 minutes. The extracts can be used with Epigentek's DNMT or HMT kits, or for a variety of applications including Western blots, protein-DNA binding assays, nuclear enzyme assays, and any procedure requiring optimized nuclear proteins.

Product Name	Size	Cat. No.
EpiQuik Nuclear Extraction Kit	100 extractions	OP-0002-1
EpiQuik Nuclear Extraction Kit II (Nucleic-Acid Free)	100 extractions	OP-0022-100

EpiQuik™ Whole Cell Extraction Kit

This product is a complete set of reagents for selectively extracting whole cell proteins from mammalian cells or tissues in just 45 minutes.

The extracts can be used for a variety of applications including Western Blots, cellular enzyme assays, and any procedure requiring optimized cellular proteins.

Product Name	Size	Cat. No.
EpiQuik Whole Cell Extraction Kit	100 extractions	OP-0003-100

Chromatin Preparation & Cleanup

Workflow Kits for ChromaFlash™ ChIP

1. Obtain chromatin samples with ChromaFlash Chromatin Extraction Kit or ChromaFlash Plant Chromatin Extraction Kit.
2. Shear chromatin with ChromaFlash Chromatin Shearing Kit or an EpiSonic Multi-Functional Bioprocessor.
3. Immunoprecipitate with ChromaFlash ChIP Kits.

Product Name	Size	Cat. No.
ChromaFlash Chromatin Extraction Kit	100 extractions	P-2001-100
ChromaFlash Plant Chromatin Extraction Kit	50 extractions	P-2022-050
ChromaFlash Chromatin Shearing Kit	50 preps	P-2023-050
ChromaFlash Chromatin Shearing HT Kit	96 preps	P-2024-96

EpiSonic Multi-Functional Bioprocessor 1100

The EpiSonic™ Multi-Functional Bioprocessor 1100 is a high throughput sonication device for rapid sample processing in genetic and epigenetic applications. Simultaneously handle 96 samples using PCR tubes or microplates for DNA shearing and chromatin shearing.

- ✓ **Touch Screen Control** - Simple, modern operation with intuitive menu navigation
- ✓ **High Degree of Precision** - Adjust amplitude levels 1% at a time, between 1% and 100%
- ✓ **Reliable Cooling System** - Automatically recirculates chilled water to maintain sample integrity and prevent degradation
- ✓ **Closed Vessel Processing** - Indirect sonication in sealed tubes or wells prevents contamination and sample loss
- ✓ **True High Throughput** - Simultaneously process between 1 to 96 samples with 0.2ml PCR tubes or a PCR plate
- ✓ **Scalability** - Simple, removable, and interchangeable vessel rack allows for expansion to different vessel sizes
- ✓ **Fast Processing** - Shear 96 DNA samples to 100-600 bp (average 300 bp) fragments in just 15-20 minutes
- ✓ **Real-Time Monitoring** - Live screen output of amplitude, wattage, and joule readings
- ✓ **Improved Bio-Safety** - No aerosol formation and little foaming; no tedious manipulation of probes
- ✓ **Automatic Overload Prevention** - Detects and shuts down to prevent damage to circuits
- ✓ **Extensive Warranty** - Backed by a 20 month warranty to ensure quality and customer satisfaction



Features at a Glance:

- High throughput capability
- No sample contamination
- Easy workflow integration
- Reproducible results
- Digital touchscreen
- Programmable memory
- Soundproofing enclosure
- Sample cooling system

Featured Epigenetic Antibodies

To enhance your epigenetic research, Epigentek provides the most complete antibody lines specific against epigenetically related proteins. From the design of the immunogen to the specificity screening and application validation, these antibodies are developed and tested through a strictly controlled process.

Features at a Glance:

- Certified for epigenetic studies
- Extensively quality tested
- Many ChIP-grade validated
- Competitively priced
- Lot-to-lot consistency

Antibody	Cat No.	Type
5-Carboxylcytosine	A-1018	Rabbit Poly
5-Formylcytosine	A-1017	Rabbit Poly
5-Hydroxymethylcytosine	A-1016	Mouse Mono
5-Methylcytosine	A-1014	Mouse Mono
DNMT1	A-1001	Mouse Mono
DNMT3A	A-1003	Rabbit Poly
DNMT3B	A-1004	Rabbit Poly
EZH2	A-2019	Rabbit Poly
Histone H3 (K9/14) Acetyl	A-4021	Rabbit Poly
Histone H3K9 Acetyl	A-4022	Rabbit Poly
Histone H3K14 Acetyl	A-4023	Rabbit Poly
Histone H3K18 Acetyl	A-4024	Rabbit Poly
Histone H3K23 Acetyl	A-4025	Rabbit Poly
Histone H3K56 Acetyl	A-4026	Rabbit Poly
Histone H4K8 Acetyl	A-4028	Rabbit Poly
Histone H4K12 Acetyl	A-4029	Rabbit Poly
Histone H4K16 Acetyl	A-4030	Goat Poly
Histone H3K4 Monomethyl	A-4031	Rabbit Poly
Histone H3K4 Dimethyl	A-4032	Rabbit Poly

Antibody	Cat No.	Type
Histone H3K4 Trimethyl	A-4033	Rabbit Poly
Histone H3K9 Monomethyl	A-4034	Rabbit Poly
Histone H3K9 Dimethyl	A-4035	Rabbit Poly
Histone H3K9 Trimethyl	A-4036	Rabbit Poly
Histone H3K27 Monomethyl	A-4037	Rabbit Poly
Histone H3K27 Dimethyl	A-4038	Rabbit Poly
Histone H3K27 Trimethyl	A-4039	Rabbit Poly
Histone H3K36 Monomethyl	A-4040	Rabbit Poly
Histone H3K36 Dimethyl	A-4041	Rabbit Poly
Histone H3K36 Trimethyl	A-4042	Rabbit Poly
Histone H3K79 Monomethyl	A-4043	Rabbit Poly
Histone H3K79 Dimethyl	A-4044	Rabbit Poly
Histone H3K79 Trimethyl	A-4045	Rabbit Poly
Histone H4K20 Dimethyl	A-4047	Rabbit Poly
Histone H4K20 Trimethyl	A-4048	Rabbit Poly
MBD1	A-1006	Rabbit Poly
MBD2	A-1007	Goat Poly
MBD4	A-1009	Rabbit Poly
p300	A-4020	Rabbit Poly

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