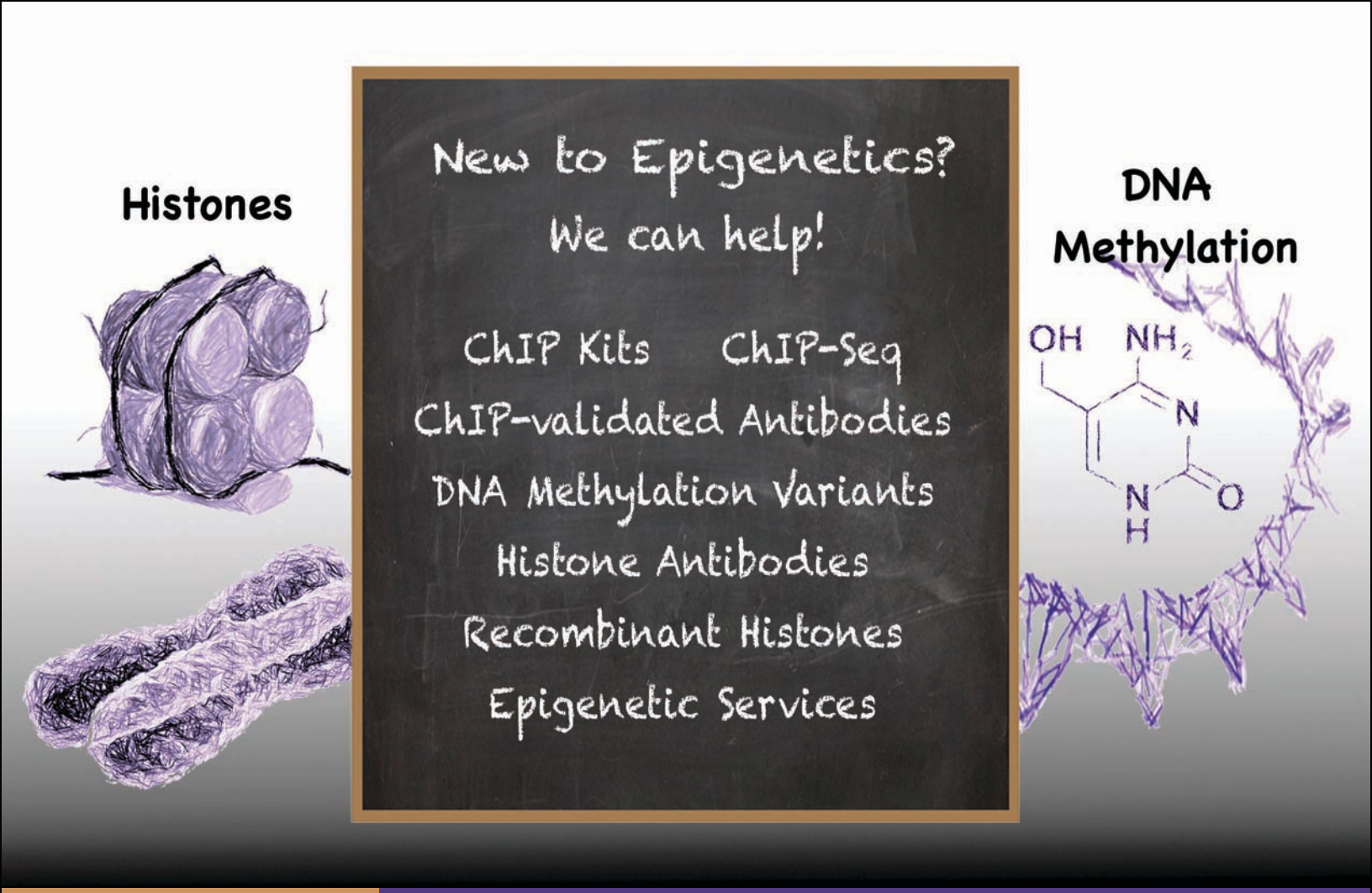


motif vations

THE NEWSLETTER OF ACTIVE MOTIF
APRIL 2014 | VOLUME 15 NUMBER 1

ACTIVE MOTIF®
Enabling Epigenetics Research

IN THIS ISSUE

2 New to Cancer Epigenetics? We Can Help.

4 NEW: Easily Perform ChIP on Difficult-to-Lyse PBMCs

5 No Sonicator? No Problem! Perform ChIP Without a Sonicator

6 NEW: Perform Bisulfite Conversion of DNA in as Little as 1.5 Hours

7 Epigenetic Services: End-to-end ChIP-Seq and Bisulfite Sequencing

8 NEW: Histone Purification Kits for More Consistent Sample Prep

9 Recombinant Proteins to Analyze Histone Modifications

10 NEW: Screen Histone Post-translational Modifications in Multiplex with our Luminex® Epigenetic Assays

11 Study Post-transcriptional Regulation Mediated Through miRNA-3´UTR Interactions

New to Cancer Epigenetics? We Can Help.

Over the last decade, epigenetic deregulation has been increasingly recognized as a hallmark of diseases such as cancer. As a result, many researchers are studying the roles that epigenetic changes play in disease. The transition into epigenetics research does not have to be intimidating because there are an increasing number of tools available to help researchers obtain their desired results.

Cancer-linked epigenetic modifications are found genome wide

Epigenetic alterations in cancer include changes in DNA methylation and associated histone modifications that influence the chromatin state and impact gene expression. The development of methods, such as ChIP and DNA methylation enrichment techniques, along with next generation sequencing tools is enabling researchers to get a better picture of the genome-wide changes associated with cancer and other diseases.

Not every antibody is suitable for epigenetic techniques

One of the greatest challenges for epigenetic-based research has been the lack of antibodies displaying the proper specificity that have been validated for use in techniques such as ChIP and ChIP-Seq. The problem has been compounded by numerous antibody suppliers who do not manufacture or test the antibodies they sell, and who sell them to one another and then to researchers. Developing and manufacturing histone-specific antibodies is challenging because histones have multiple post-translational modifications along their "tail" portion involved in gene regulation and disease. Effective antibodies must clearly differentiate between these multiple, subtle variances and also be able to perform in demanding epigenetic techniques.

What makes a good antibody?

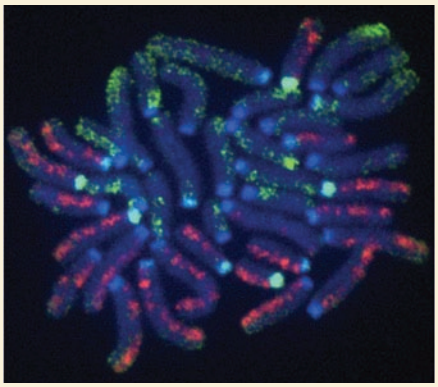
Active Motif has established a validation program for its antibodies to qualify them for their intended use. This includes ChIP-Seq testing, ChIP validation as well as a test on the specificity of our histone antibodies with a unique MODified™ Histone Peptide Array. For the full list of our epigenetics antibodies, please visit www.activemotif.com/antibodies.

"How do chromatin biology and epigenetics contribute to cancer development, and what can be done to treat cancers caused by epigenetic events?"

DNA methylation and hydroxymethylation

Aberrant changes in DNA methylation have been well characterized in a variety of cancers. In general, the cancer epigenome is marked by global DNA hypomethylation and promoter-specific DNA hypermethylation, which often leads to silencing of tumor suppressor genes.

The recently characterized DNA modification 5-hydroxymethylcytosine (5-hmC) has also been linked to cancer. Reductions in both 5-hmC levels and in expression of the TET enzymes that convert 5-mC to 5-hmC have been reported in breast, liver, lung, prostate and pancreatic cancers.



Tools for DNA methylation analysis

Due to the roles it plays in development and disease, much research depends on the ability to accurately detect and quantify DNA methylation. Active Motif offers a number of products specific for this area of research, including kits and antibodies that enrich for DNA fragments that contain 5-mC and 5-hmC. Many of our DNA methylation antibodies have been validated for use in ChIP, MeDIP and/or immunofluorescence. For complete details on our DNA methylation products, please visit us at www.activemotif.com/dnamt.

Regulating the histone code

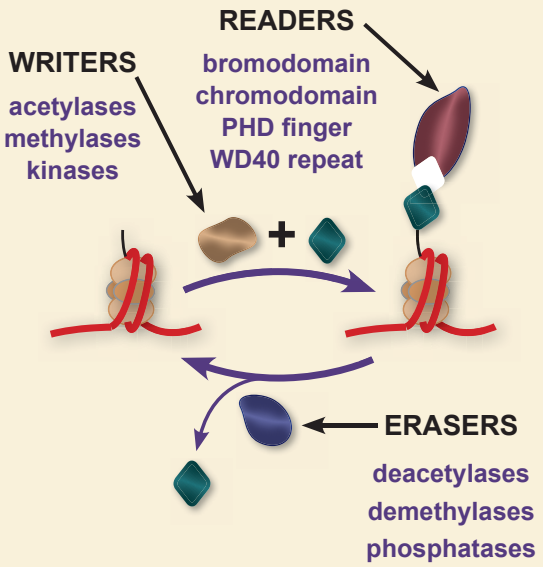
The "histone code" is comprised of post-translational modifications that occur on the histone tails. These modifications are generated, interpreted and edited by proteins coined "Writers", "Readers" and "Erasers". Aberrant epigenetic regulation can lead to changes in gene expression and the development of cancer.

The central role of ChIP in epigenetic studies

ChIP (chromatin immunoprecipitation) is the principal technique used to map epigenetic marks to individual loci in the genome. By using ChIP, researchers can determine the relationships between histone marks or other proteins, such as transcription factors, and gene expression.

Using the right tools for ChIP

ChIP is a technically challenging method, and numerous factors can cause it to fail. Therefore, researchers who are not experts in the technique are best served using well-validated and reliable kits to perform these assays. Active Motif has developed a number of kits and accessory reagents tailored to help researchers with their ChIP experiments. They provide all the critical components needed in a single kit along with easy-to-follow instructions. These kits and associated antibodies have been used in hundreds of labs and cited in thousands of papers in peer reviewed journals. For a complete list of kits and reagents for ChIP, please visit us at www.activemotif.com/chip.



Let us do the work for you: Active Motif Epigenetic Services

Reproducibly generating high-quality, interpretable data from ChIP experiments can be challenging as it requires prior knowledge of working antibodies, optimized protocols for various cell types and knowledge of cell type-specific binding sites. Add in the technical and bioinformatics challenges associated with generating whole-genome data sets, and ChIP-Seq may literally be beyond your reach. That is why our Epigenetic Services team provides a wide variety of ChIP services, making it possible for you to utilize our expertise and research tools without having to be an expert in the techniques yourself. To find out more, or to get a quote, go to www.activemotif.com/services.

"Epigenetic applications require the use of antibodies with the proper specificity that have been validated for use in techniques such as ChIP, ChIP-Seq and MeDIP."

NEW

Easily Perform ChIP on Difficult-to-Lyse PBMCs

Active Motif's new ChIP-IT® PBMC Kit overcomes the challenges of generating quality chromatin for use in ChIP from peripheral blood mononuclear cells (PBMCs), such as lymphocytes (T and B cells) and monocytes, that are highly resistant to lysis using conditions normally suitable for other cells. The ChIP-IT PBMC Kit offers a complete solution for ChIP by providing optimized buffers and lysis conditions together with our highly sensitive ChIP reagents, ensuring successful ChIP reactions even when working with problematic cells like PBMCs.

ChIP-IT Kit specific for PBMCs

PBMCs, including lymphocytes (T cells, B cells and NK cells) and monocytes, constitute a critical component of the peripheral immune system. Because of the importance of PBMCs in immunology and infectious disease research, a robust method to extract quality chromatin from these cells for ChIP and ChIP-Seq analysis is highly warranted. Active Motif applied its years of experience working with these difficult-to-lyse sample types into developing an optimized chromatin preparation method that yields high-quality chromatin from PBMCs. Used with our highly sensitive ChIP reagents, this new method will improve your results and help you achieve better ChIP data.

What's in the box?

The ChIP-IT PBMC Kit contains optimized buffers and protocols that improve the efficiency of PBMC cell lysis, enabling extraction of quality chromatin for ChIP. It also contains our high sensitivity ChIP reagents for performing 16 chromatin immunoprecipitation reactions using our low background Protein G agarose beads and ChIP filtration columns for quick, easy capture and washing steps.

qPCR analysis simplified

For downstream analysis of ChIP-IT PBMC generated data, we highly recommend our ChIP-IT qPCR Analysis Kit. It includes control reagents and spreadsheets designed to simplify the analysis and interpretation of qPCR data, enabling you to assess the quality of your ChIP'd DNA prior to investing in expensive sequencing experiments. For more information, visit www.activemotif.com/pbmc.

PBMC ChIP on CD8+ T Cells

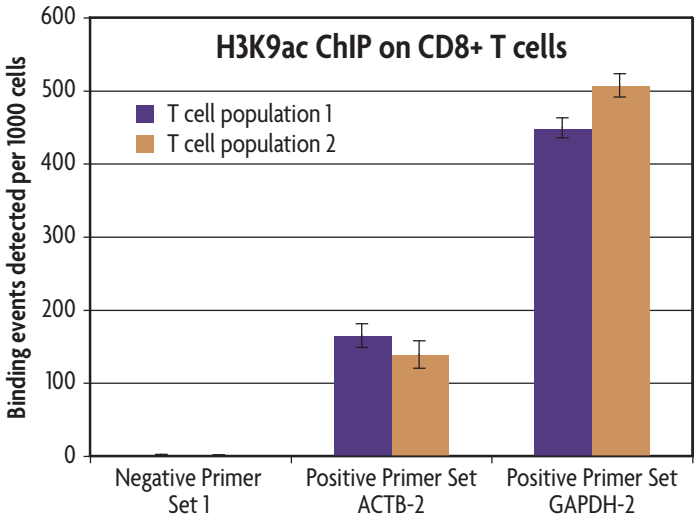


Figure 1: ChIP-IT PBMC shows H3K9ac enrichment at the ACTB and GAPDH promoters. The ChIP-IT PBMC Kit was used to prepare chromatin from CD8+ T cells and perform ChIP using a Histone H3K9ac antibody. Following enrichment, qPCR was performed using the ChIP-IT qPCR Analysis Kit to normalize the data. Enrichment of H3K9ac was observed with the ACTB-2 (Catalog No. 71005) and GAPDH-2 (Catalog No. 71006) Positive Control Primer Sets, but the Negative Control Primer Set (Catalog No. 71001) showed no enrichment.

Product	Format	Catalog No.
ChIP-IT® PBMC	16 rxns	53042
ChIP-IT® qPCR Analysis Kit	10 rxns	53029

No Sonicator? No Problem! Perform ChIP Without a Sonicator

Active Motif's ChIP-IT® Express Enzymatic Kit makes it possible to perform chromatin immunoprecipitation (ChIP) experiments quickly and easily from cultured cell samples without the need for a sonicator. It uses a proprietary enzymatic shearing cocktail to reproducibly shear DNA into 200-1000 bp fragments that are ideal for ChIP.

Why another ChIP Kit?

Although sonication is an effective method to shear DNA, not everybody owns a sonicator. For new users, it can be difficult to optimize sonication parameters and get reproducible results due to complications such as emulsification and overheating.

Because of this, Active Motif has developed a robust and extremely user-friendly method to shear chromatin for ChIP using enzymatic digestion. The ChIP-IT Express Enzymatic Kit uses a proprietary Enzymatic Shearing Cocktail that quickly shears DNA into 200-1000 bp fragments (Figure 1).

Because enzymatic shearing is solely time and temperature dependent, the problems associated with sonication are eliminated. Enzymatic shearing is a good choice for users who do not plan to do enough ChIP to make it worthwhile to invest the time and money required to purchase and learn how to use a sonicator.

What's in the box?

The ChIP-IT Express Enzymatic Kits include Protein G Magnetic Beads, an enzymatic shearing cocktail, protease inhibitors, lysis enzymes and buffers.

The kit provides sufficient reagents for performing 25 ChIP reactions. Shearing components are included to optimize shearing conditions and then make 5 preparations of sheared chromatin from three 15 cm plates (4.5×10^7 cells); each preparation yields enough chromatin to perform approximately 6 ChIP reactions.

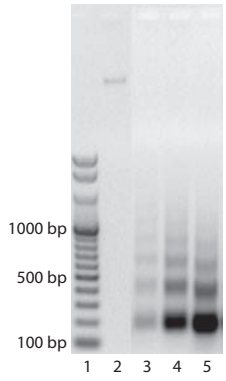


Figure 1: Gel analysis of sheared chromatin prepared using the ChIP-IT Express Enzymatic Kit.
Lane 1: 100 to 1000 bp ladder.
Lane 2: Unsheared HeLa DNA.
Lanes 3-5: HeLa DNA incubated with Enzymatic Shearing Cocktail for 5, 10 and 15 minutes.

ChIP companion products help make chromatin IP even easier

Active Motif offers a number of ChIP Accessory Products that are designed to make it even easier for you to perform successful ChIP when working with our ChIP-IT Kits. These include ChIP qPCR primer sets, ChIP-validated antibodies, ChIP-IT Control Kits and ChIP DNA cleanup kits.

For more information, please visit us at www.activemotif.com/chip.

ChIP Express Enzymatic advantages

- No sonication equipment required
- User-friendly protocol
- Simplifies optimization of fragment size
- Mild enzymatic treatment preserves chromatin and epitope integrity
- Perform ChIP in just 1 day

Product	Format	Catalog No.
ChIP-IT® Express Enzymatic	25 rxns	53009
ChIP-IT® Express Enzymatic Shearing Kit	10 rxns	53035
Chromatin IP DNA Purification Kit	50 rxns	58002
ChIP-IT® Control qPCR Kit – Human	5 rxns	53026

NEW

Perform Bisulfite Conversion of DNA in as Little as 1.5 Hours

Active Motif's new Bisulfite Conversion Kit simplifies the bisulfite treatment of DNA while minimizing DNA fragmentation, degradation and sample loss during the treatment and cleanup steps. A thermal cycler is used to denature the DNA and perform bisulfite conversion in as little as 1.5 hours. The included spin columns combine desulfonation and DNA purification into a single step. The purified, converted DNA is ideal for PCR amplification and sequencing, endonuclease digestions and other downstream applications.

Highlights

- Rapid conversion of DNA in as little as 1.5 hours
- Minimal DNA fragmentation, degradation and loss
- > 99% conversion efficiency
- Easily convert 200 pg – 2 µg DNA
- Conversion-specific PCR primers included to validate results

How does it work?

Bisulfite conversion and subsequent DNA sequencing is considered the gold standard in DNA methylation analysis as it provides single base-pair resolution of the DNA methylation profile. The conversion reaction occurs as a three-step deamination of cytosine residues into uracil. As only unmethylated cytosine residues are susceptible to bisulfite conversion, the original methylation state of the DNA can be determined (Figure 1).

What's in the box?

The Bisulfite Conversion Kit contains proteinase K for pre-treatment of the DNA, optimized conversion and purification reagents, an easy-to-use protocol and conversion-specific PCR primers suitable for use with human and mouse samples. Because the conversion-specific primer pair produces a PCR product only if conversion has occurred, the primers can be used to validate results before starting sequencing or other analysis methods. For more information, please visit www.activemotif.com/bis-conv.

Bisulfite Treatment Converts Unmethylated Cytosines into Uracils

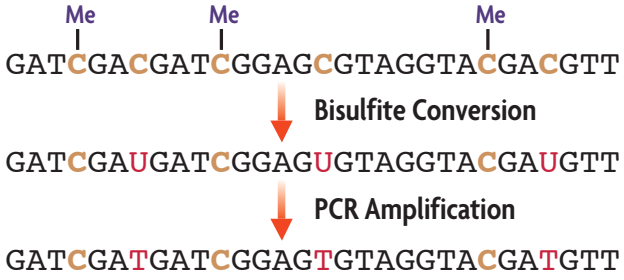


Figure 1: Bisulfite treatment converts unmethylated cytosine residues into uracils, which are then converted to thymines following PCR amplification. Methylated cytosines are protected, so they remain unchanged.

Step-by-step Bisulfite Conversion

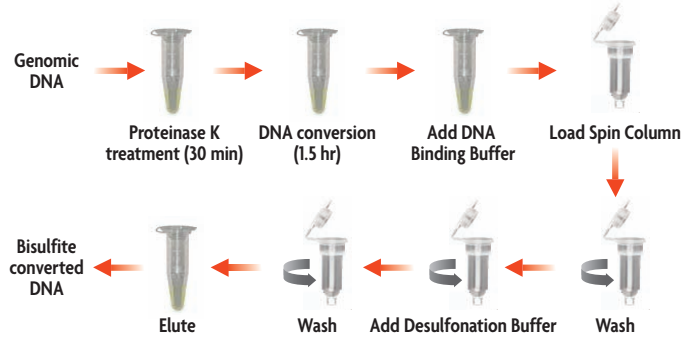


Figure 2: Flow chart of the Bisulfite Conversion Kit procedure.

Product	Format	Catalog No.
Bisulfite Conversion Kit	50 rxns	55016

Epigenetic Services: End-to-end ChIP-Seq and Bisulfite Sequencing Assays

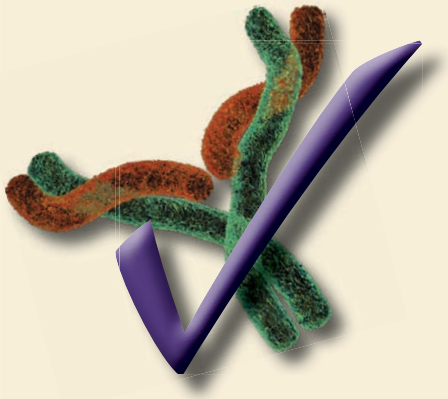
Active Motif is committed to being the leader in the field of epigenetics and to making whole-genome epigenetics and transcriptional regulation data accessible to everyone. That is why, in addition to our wide range of kits and antibodies for chromatin, DNA methylation and transcription research, our Epigenetic Services team performs end-to-end services for ChIP, ChIP-Seq, bisulfite sequencing and more. Simply send us your samples and we'll provide you with high-quality data that will propel your research forward.

ChIP antibody validation: The #1 challenge in ChIP-Seq

Researchers performing ChIP-Seq encounter many challenges in this multistep protocol. However, finding a good antibody may be the biggest hurdle because so few function in ChIP-Seq. Therefore, Active Motif offers ChIP validation of any custom or commercially available antibody.

The quickest, most reliable path to antibody validation

1. Customer sends fixed or frozen cell or tissue samples.
2. Active Motif prepares chromatin.
3. Active Motif performs ChIP.
4. ChIP-Seq libraries are constructed.
5. Libraries are sequenced using Illumina MiSeq.
6. Data is analyzed and delivered.



Industry standard success rate for performing ChIP

- 25% of all transcription factor antibodies
- 80% for histone modification antibodies

Targeted Next-Gen Bisulfite Sequencing: DNA methylation at base pair resolution

For researchers that have already identified differentially methylated regions or key genes of interest using a genome-wide methylation analysis approach, the next step is validation of those regions.

Active Motif's Targeted Next-Gen Bisulfite Sequencing Service offers a high-throughput solution. This assay combines multiple bisulfite-converted regions from several different samples into a single Next-Gen sequencing reaction, resulting in more statistically significant data at a lower cost than traditional Sanger-based bisulfite sequencing.

Targeted Next-Gen Bisulfite Sequencing Service includes

- Bisulfite conversion
- Primer design and testing
- PCR amplification
- Barcoded library generation
- DNA sequencing
- Data analysis

For more information, or to request a quote, please go to www.activemotif.com/services.

NEW

Histone Purification Kits for More Consistent Sample Prep

Improve the consistency and reliability of your analysis of histone modifications by using purified histone samples. Purification of histones eliminates contaminating acid-insoluble cellular proteins that are left behind with standard acid extraction protocols. Removal of these impurities also prevents additional alterations to histone modifications, ensuring you have the highest quality histone samples for use in your downstream analysis.

Advantages

- Exclusivity – only commercial kits available for histone purification
- Quality – enhanced histone purity and preservation of histone modifications
- Scalability – 3 throughput formats available to suit your needs
- Flexibility – works with cell or tissue samples

The pure advantage

Active Motif is the only company to offer a method for isolating purified core histones from cell and tissue samples that preserves their post-translational modifications.

The proprietary buffers and spin columns included in our purification kits are available in multiple formats, so you can choose the one that best fits the needs of your experiment (Table 1). Isolated histones are suitable for use in various downstream applications such as Western blot, mass spectrometry and in high-throughput methods, including our Histone Modification ELISAs (Figure 1) and Histone H3 PTM Multiplex Assay (page 10).

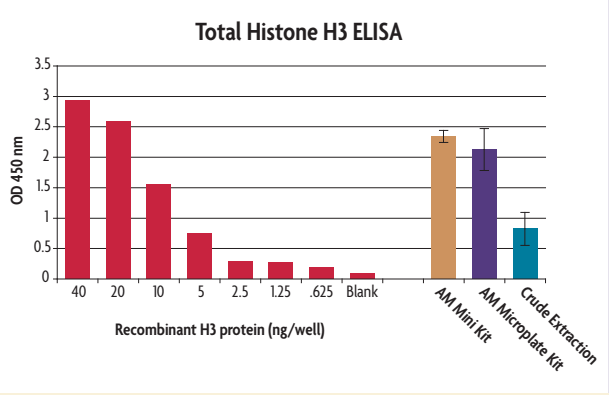


Figure 1: Active Motif's histone purification method improves histone yield over crude acid extraction. The Total Histone H3 ELISA Kit (Cat. No. 53110) was used to generate a standard curve with the kit's Recombinant Histone H3 protein (red). The kit was then used to quantify the amount of Total H3 in purified histone samples obtained using the Histone Purification Mini Kit and the Histone Purification Microplate Kit as compared to samples isolated using crude acid extraction.

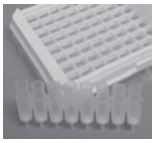
	Histone Purification Kit	Histone Purification Mini Kit	Histone Purification Microplate Kit
Catalog No.	40025	40026	40027
Application	 • Low throughput • High sample amounts	 • Medium throughput • Mid-range sample amounts	 • High throughput • Low sample amounts
Fractions	Single fraction, or separated into H2A/H2B & H3/H4 fractions	Single fraction containing H2A, H2B, H3 & H4	Single fraction containing H2A, H2B, H3 & H4
# of purifications	10	20	96

Table 1: Specifications of Active Motif's various Histone Purification Kits. For more information, please got to www.activemotif.com/histonepur.

Recombinant Proteins to Analyze Histone Modifications

Active Motif offers a comprehensive selection of recombinant histone modifying enzymes, as well as unmodified and modified histones, for epigenetic drug discovery applications. Our patented synthesis technologies enable Active Motif to be the exclusive source for many full-length modified histones. We also offer a broad selection of bromodomains, HATs, HDACs, HMTs and HDMs for use in studies of enzyme kinetics, inhibitor screens, selectivity profiling and structural analysis.

Assay-ready proteins include:

- The largest selection of Modified and Unmodified Histones
- The largest selection of Bromodomain proteins
- Acetyltransferases & Deacetylases
- Methyltransferases & Demethylases

Assay-ready recombinant proteins

If you are analyzing histone modifications or Readers, Writers and Erasers as part of your research, there is no need to waste your valuable time and resources producing protein substrates and enzymes for use in your assays. Active Motif offers a comprehensive selection of high-quality recombinant proteins, enzymes and domains for analysis of histone modifications that can readily be incorporated into your assays to help accelerate your research.

Proteins for Biochemical Assays

- Enzyme activity assays
- Inhibitor screens
- Selectivity profiling
- Structural analysis
- TR-FRET

With over 300 purified assay-ready recombinant proteins and a large selection of recombinant histones and histone modifying enzymes – including bromodomains, HATs, HDACs, HMTs and HDMs – you are sure to find what you need to develop more efficient assays for your drug discovery and development programs.

For the complete list of purified recombinant proteins available, please go to www.activemotif.com/proteins.

Full-length modified histones

Your biochemical assay can better select and validate activity when the system mimics actual cellular biology (Figure 1). To help you make the correct choice of histone substrate, Active Motif offers the largest selection of recombinant histones with over 60 different H3 and H4 histones to choose from.

Our recombinant histones can be used as stand-alone substrates or combined with recombinant H2A and H2B to generate nucleosomes. Oligonucleosomes can be generated using our Chromatin Assembly Kit (Cat. No. 53500). It is important to analyze the effects of DNA sequence and histone modifications in a native chromatin environment. By using the most biologically relevant substrate, you can ensure the most accurate result.

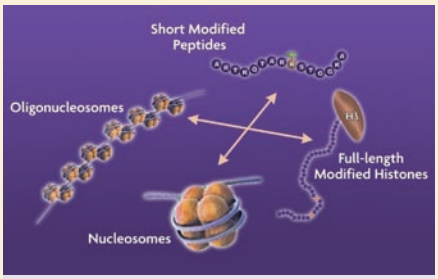


Figure 1: Which substrate is right for your assay? Choose the correct substrate to achieve the best results. Opinion leaders in epigenetics recognize the power of reconstituting recombinant chromatin for creating biologically relevant substrates.

Exclusive, comprehensive portfolio

Because of our patented Expressed Protein Ligation (EPL) and Methylated Lysine Analog (MLA) synthesis technologies, Active Motif offers the most exclusive and comprehensive set of full-length modified histones.

Our exclusive collection of modified recombinant histones offers a variety of site- and degree-specific methyl, acetyl and phosphoryl modifications, as well as biotinylated histones to choose from. For a complete list of available histones, please visit us at www.activemotif.com/recombhis.

NEW

Screen Histone Post-translational Modifications in Multiplex with our Luminex® Epigenetic Assays

The Histone H3 PTM Multiplex Assay is the first commercial multiplex assay for screening global changes in the levels of histone post-translational modifications (PTMs). The assay enables simultaneous analysis of multiple modifications in a single well using smaller sample amounts, in less time and at a fraction of the cost of traditional methods, such as Western blots.

Advantages

- Multiplex analysis of up to 13 PTMs
- Requires only nanograms of sample
- 3 hour assay
- Ability to normalize & compare relative PTM levels across samples
- Higher throughput, faster and less expensive than Western blotting or AlphaLISA

How does it work?

Active Motif partnered with Luminex, the industry leader in multiplexing, to develop the first multiplex epigenetic assay for high-throughput analysis of histone modifications.

The Histone H3 PTM Multiplex Assay works as a solution-based suspension sandwich "ELISA" to analyze relative levels of histone H3 modifications.

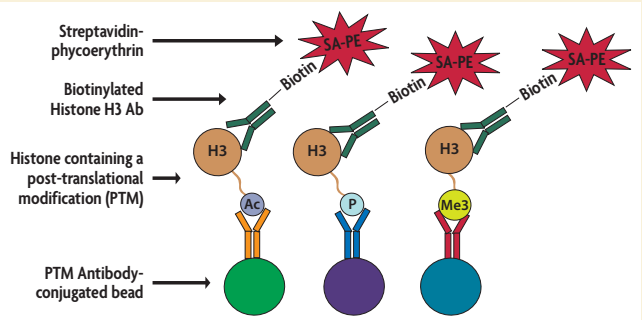


Figure 1: Histone H3 PTM Multiplex Assay schematic.

Histones are captured using fluorescent labeled magnetic beads that are conjugated to antibodies recognizing specific PTMs in histone tails. A biotinylated H3 C-terminal antibody is used to capture histones. Streptavidin-phycoerythrin is then added to bind the biotinylated antibody to provide a signal of the binding events (Figure 1). Inclusion of the Histone H3 Total beads in a multiplex enables normalization of values against total histone H3 levels so you can determine the relative amounts of each histone modification in each sample.

Each bead emits a specific, unique fluorescent signal, enabling the multiplexing of multiple analytes in the same sample. You can also measure the magnitude of the streptavidin-phycoerythrin signal to provide a real-time readout of PTM levels (Figure 2).

What's in the box?

A complete assay requires purchase of both the Histone H3 PTM Multiplex Kit containing buffers and reagents required to perform the assay as well as the Ab-conjugated bead(s) for your analytes of interest. To learn more, please visit us at www.activemotif.com/luminex.

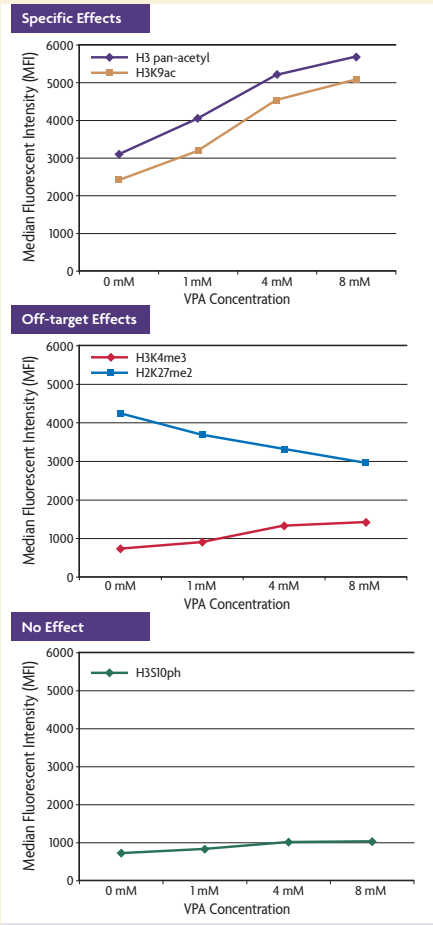


Figure 2: Single-well, multiplexed data from the Histone H3 PTM Assay simultaneously reveals specific, off-target and non-specific effects of VPA inhibitor.

Study Post-transcriptional Regulation Mediated Through miRNA-3´UTR Interactions

MicroRNAs (miRNAs) are small, non-coding RNA molecules that play a large role as post-transcriptional regulators. miRNAs repress expression by targeting the 3´UTR (untranslated) region of mRNA transcripts. The interaction of a miRNA with a 3´UTR results in either inhibition of translation or increased degradation of the targeted transcript.

Applications

- Understand the mechanism by which a gene is induced or repressed
- Measure the impact of a 3´UTR on post-transcriptional gene regulation
- Validate the targets of a miRNA or siRNA
- Measure the effects of sequence variants on 3´UTR or miRNA function

Complete regulation solution

The LightSwitch™ Luciferase Assay System is ideal for performing miRNA target validation and assessing the functional impact of miRNA-3´UTR interactions. It includes the 3´UTR Reporter GoClone™ Collection of over 12,000 human 3´UTRs cloned from the human genome into ready-to-transfect LightSwitch reporter vectors. Combined with our large collections of miRNA Mimics & Inhibitors, you have everything needed to study miRNA-3´UTR interactions, validate miRNA targets, measure RNA stability, translation efficiency and the functional impact of miRNAs on a gene-by-gene basis (Figure 1).

Optimized luciferase gene, substrate and assay reagents

The LightSwitch System was designed to ensure you get the best results possible. LightSwitch vectors utilize RenSP, an optimized *Renilla* luciferase gene that was engineered for maximum brightness and minimal background. In addition, LightSwitch Assay Kits feature a novel, proprietary assay substrate and an optimized lysis buffer that provide high sensitivity over a broad dynamic range.

Get your clones of interest fast

To get started, use our convenient online search tool to find your elements of interest. As GoClone constructs are supplied transfection-ready, you can begin your experiments immediately without the need to clone or prepare DNA.

Accelerate your research

Alternatively, our Custom Services team can quickly and economically clone any fragment from the human, mouse or rat genome into any LightSwitch vector for you. We also offer miRNA Target Validation and Sequence Variant Assay services. For more information, please visit us at www.activemotif.com/lightswitch.

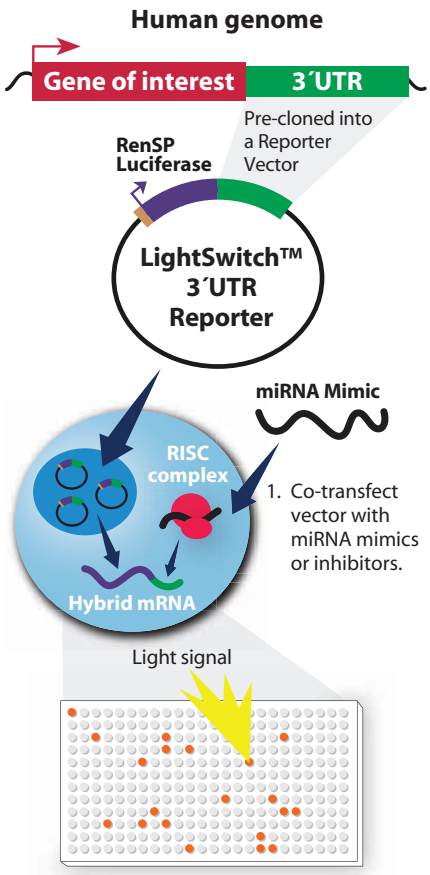


Figure 1: LightSwitch 3´UTR Reporter Assays. A 3´UTR cloned into a LightSwitch 3´UTR Reporter vector is co-transfected with miRNA mimics or inhibitors. The relative amounts of light produced in cells with and without miRNA are used to measure the effect of the miRNA-3´UTR interaction on translation of the hybrid RenSP-3´UTR mRNA transcript.

ACTIVE MOTIF®

Enabling Epigenetics Research

NORTH AMERICA
Toll Free: 877 222 9543
Direct: 760 431 1263
Fax: 760 431 1351
sales@activemotif.com
tech_service@activemotif.com

JAPAN
Direct: +81 (0)3 5225 3638
Fax: +81 (0)3 5261 8733
japantech@activemotif.com

EUROPE
GERMANY 0800/181 99 10
UNITED KINGDOM 0800/169 31 47
FRANCE 0800/90 99 79
OTHER COUNTRIES, DIRECT +32 (0)2 653 0001
Fax: +32 (0)2 653 0050
eurotech@activemotif.com

www.activemotif.com