



EpiCypher[™]

Bringing Epigenetics to Life

Specialized
Recombinant Nucleosomes
For Drug Discovery and
Chromatin Research

Functionalized Nucleosome Substrates for Drug Discovery and Chromatin Research

Nucleosomes are the physiological target of readers, writers and erasers that interact with or modify chromatin. The incorporation of nucleosome substrates into drug discovery assays is a dramatic improvement over peptides, providing access to historically challenging targets.

EpiCypher has pioneered the manufacture of nucleosomes for epigenetics research and drug discovery, producing the highest quality products available. We offer a rapidly expanding portfolio of fully defined and homogeneous recombinant nucleosomes incorporating different DNA and histone modifications, site mutations, or histone variants.



Characteristics

Designer Nucleosomes

- Fully recombinant human histones
- Contain physiological histone PTMs
- 601 Nucleosome positioning sequence (biotinylated)

Advantages

- Stably positioned nucleosome
- Suitable for enzyme assays and high throughput screening (modification addition or removal)
- Suitable for protein-protein interaction studies involving the modification of interest



Recombinant Nucleosomes

- Fully recombinant human histones
- 601 Nucleosome positioning sequence (available in biotinylated and non-biotinylated forms)

- Devoid of post-translational modifications
- Stably positioned nucleosome
- Suitable for enzyme assays, inhibitor testing and high throughput screening (modification addition)



Oncogenic Nucleosomes

- Fully recombinant human histones
- Contains specific K-to-M mutations associated with cancer
- 601 Nucleosome positioning sequence (biotinylated)

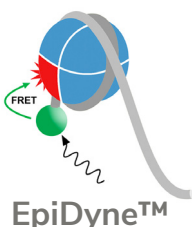
- Study effects of mutations on enzyme activity
- Suitable for high throughput screening and inhibitor testing
- Can be used for structural studies



Histone Variant Nucleosomes

- Fully recombinant human histones
- Includes one of several histone variants
- 601 Nucleosome positioning sequence (biotinylated)

- Study effects of mutations on enzyme activity
- Suitable for high throughput screening and inhibitor testing
- Can be used for structural studies

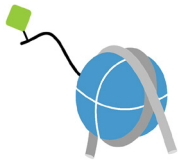


Chromatin Remodeling Assay Substrate

- Fully recombinant human histones
- Nucleosome positioning sequence with an added nucleosome acceptor sequence
- Functionalized DNA or histones to enable HTS assay development

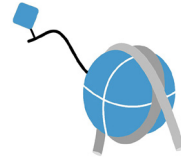
- Suitable for high throughput screening and inhibitor testing
- Stably positioned nucleosome
- Can be used for structural studies

dNucs: Designer Recombinant Nucleosomes With PTMs (Biotinylated)



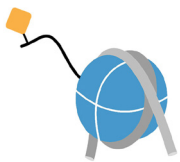
dNucs Histone Lysine Methylation

H3K4me1		16-0321	50 µg
H3K4me2	NEW	16-0334	50 µg
H3K4me3		16-0316	50 µg
H3K9me1		16-0325	50 µg
H3K9me2	NEW	16-0324	50 µg
H3K9me3		16-0315	50 µg
H3K27me1		16-0338	50 µg
H3K27me2	NEW	16-0339	50 µg
H3K27me3	NEW	16-0317	50 µg
H3K36me1		16-0322	50 µg
H3K36me2		16-0319	50 µg
H3K36me3		16-0320	50 µg
H4K20me1	NEW	16-0331	50 µg
H4K20me2	NEW	16-0332	50 µg
H4K20me3	NEW	16-0333	50 µg



dNucs Histone Acylation

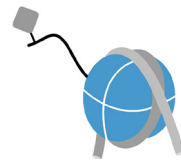
H3K9ac	NEW	16-0314	50 µg
H3K9cr	coming soon	16-0351	50 µg
H3K14ac	NEW	16-0343	50 µg
H3K27ac	coming soon	16-0365	50 µg
H4K5ac	coming soon	16-0352	50 µg
H4K8ac	coming soon	16-0353	50 µg
H4K12ac		16-0312	50 µg
H4K16ac	coming soon	16-0354	50 µg
H4K5,8,12,16ac		16-0313	50 µg



dNucs Other PTMs

H3S10ph	NEW	16-0345	50 µg
H2Aub*	NEW	16-0020	50 µg
H3R2,8,17Cit	NEW	16-0362	50 µg

*Enzymatically-modified; contains ubiquitination at H2AK13/15 and H2AK119.



dNucs Histone Arginine Methylation

H2AR3me1	coming soon	16-0359	50 µg
H2AR3me2a	coming soon	16-0360	50 µg
H2AR3me2s	coming soon	16-0361	50 µg
H3R2me1	NEW	16-0340	50 µg
H3R2me2a	NEW	16-0341	50 µg
H3R2me2s	coming soon	16-0355	50 µg
H4R3me1	coming soon	16-0356	50 µg
H4R3me2a	coming soon	16-0357	50 µg
H4R3me2s	coming soon	16-0358	50 µg

Other Recombinant Nucleosomes (Biotinylated)

oncoNucs

AA Substitutions Implicated in Cancer



H3.3K4M	NEW	16-0349	50 µg
H3.3K9M	coming soon	16-0350	50 µg
H3.3K27M		16-0323	50 µg
H3.3G34R	coming soon	16-0346	50 µg
H3.3G34V	coming soon	16-0347	50 µg
H3.3G34W	coming soon	16-0348	50 µg
H3.3K36M	NEW	16-0344	50 µg

vNucs

Histone Variants



H2AX	NEW	16-0013	50 µg
H2AZ.1	NEW	16-0014	50 µg
H2AZ.2	NEW	16-0015	50 µg
H3.3		16-0011	50 µg
H3.3, non-biotinylated		16-0012	100 µg

rNucs

Human Recombinant, No PTMs

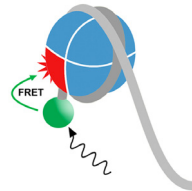


Mononucleosomes, biotinylated	16-0006	50 µg
Mononucleosomes, non-biotinylated	16-0009	100 µg

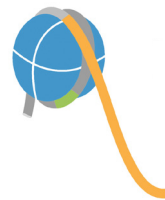
Recombinant Nucleosome Remodeling Substrates

EpiDyne

Monitor Nucleosome Remodeling in vitro



EpiDyne FRET Nucleosome Remodeling Assay Substrate	16-4201	50 µg
	NEW	



EpiDyne Nucleosome Remodeling Assay Substrate ST601-GATC1	16-4101	50 µg
	NEW	

EpiDyne Remodeling Assay Substrate DNA ST601-GATC0	18-4100	50 µg
	NEW	

EpiDyne Remodeling Assay Substrate DNA ST601-GATC1	18-4101	50 µg
	NEW	

Custom nucleosome synthesis available.

Please email us at info@epicypher.com for additional information and pricing or complete a [Request for Quote](#) form on our website.

Functionalized Nucleosome Substrates for Drug Discovery and Chromatin Research

Join the nucleosome revolution and get results that matter.

Nucleosomes are the *in vivo* targets of chromatin regulating proteins (i.e. readers, writers, and erasers), making them ideal biochemical substrates for drug development. EpiCypher offers HTS assay development services on our highly sensitive and robust nucleosome-based inhibitor screening platform (AlphaNuc™).

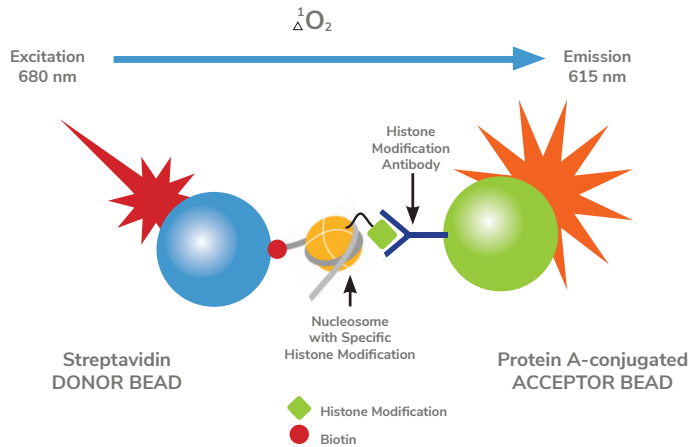


FIGURE 1

Schematic of AlphaNuc platform. Streptavidin-coated Donor beads capture the biotinylated nucleosome DNA. Protein A-conjugated AlphaLISA™ Acceptor beads are used to capture primary antibody that recognizes H3K36me2. Donor and Acceptor beads come into proximity through antibody binding of the histone modification.

Excitation of the Donor beads (680 nm) provokes the release of a singlet oxygen that triggers a cascade of energy transfer reactions in the Acceptor beads, resulting in a sharp peak of light emission at 615 nm.

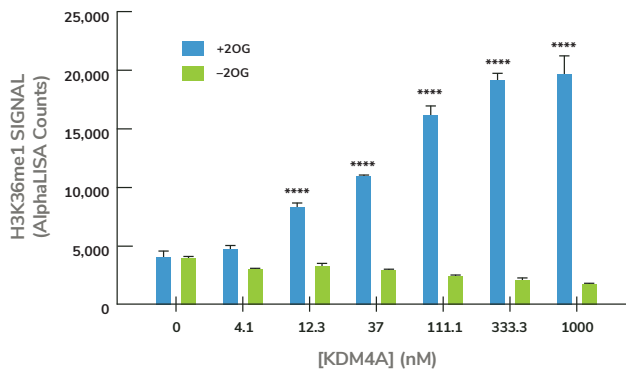


FIGURE 2

Histone Demethylase Assay (AlphaNuc™) to detect KDM4A-mediated demethylation using EpiCypher H3K36me3 dNuc substrate (0.1 nM, Catalog No. 16-0320). KDM4A levels were titrated in the presence (+2OG) or absence (-2OG) of the cofactor 2-oxoglutarate. Demethylation was detected by anti-H3K36me1 antibody bound by Protein A Acceptor Beads (PerkinElmer).

The addition of Streptavidin Donor beads (PerkinElmer) induced an AlphaLISA signal by binding the biotinylated dNuc. Asterisks indicate a significant difference between +2OG/-2OG cofactor conditions at the indicated KDM4A concentration. Assay Z' Factor at 111.1 nM KDM4A was 0.72.

ORDERING INFO

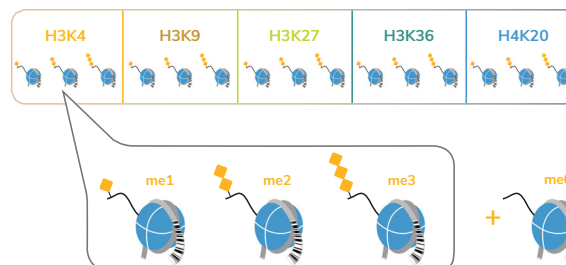
Website: EpiCypher.com/nucleosomes

Related Products

SNAP-ChIP K-MetStat panel for Sample Normalization and Antibody Profiling for ChIP-Seq

Catalog No. 19-1001

K-MetStat Panel



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