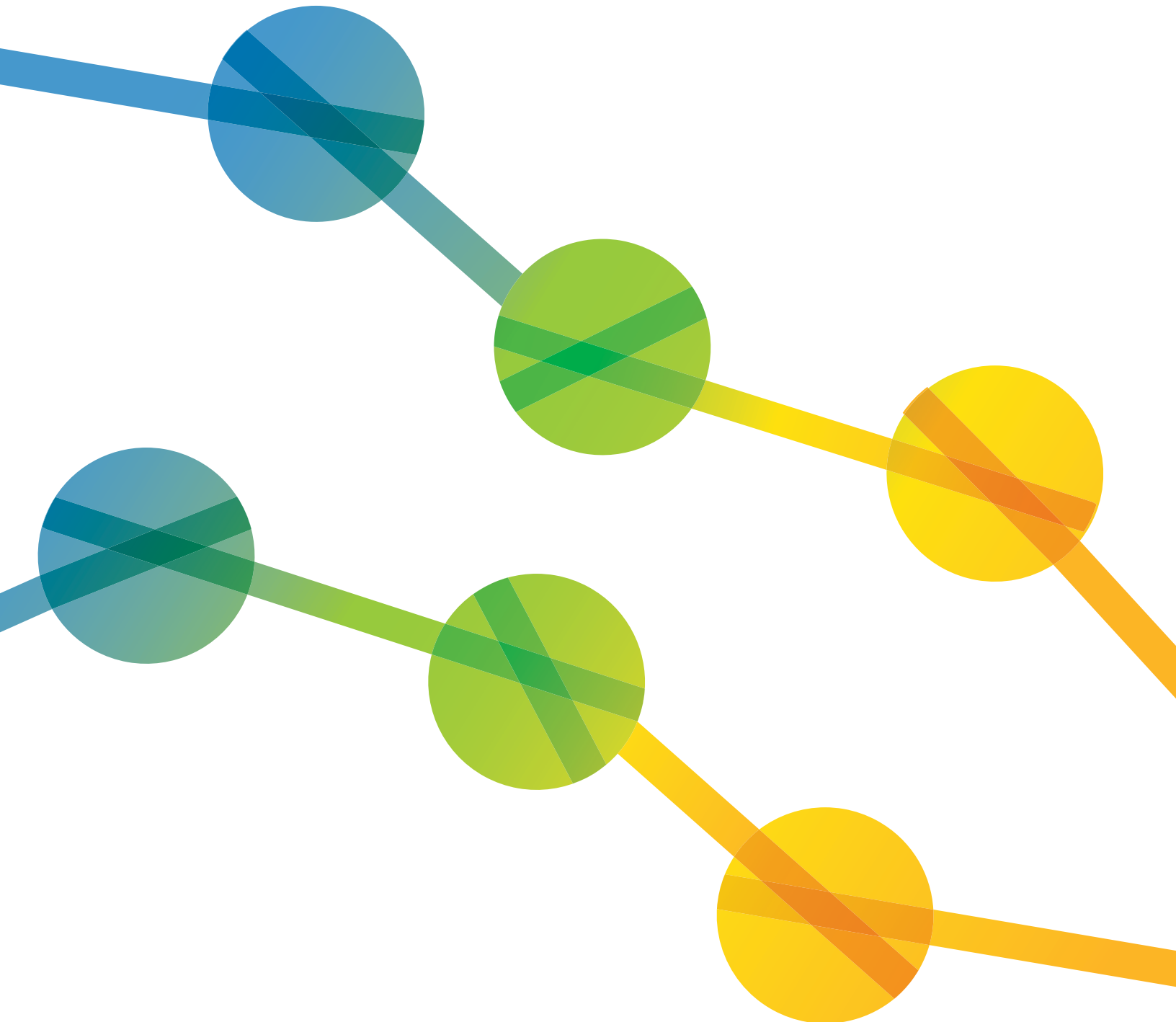
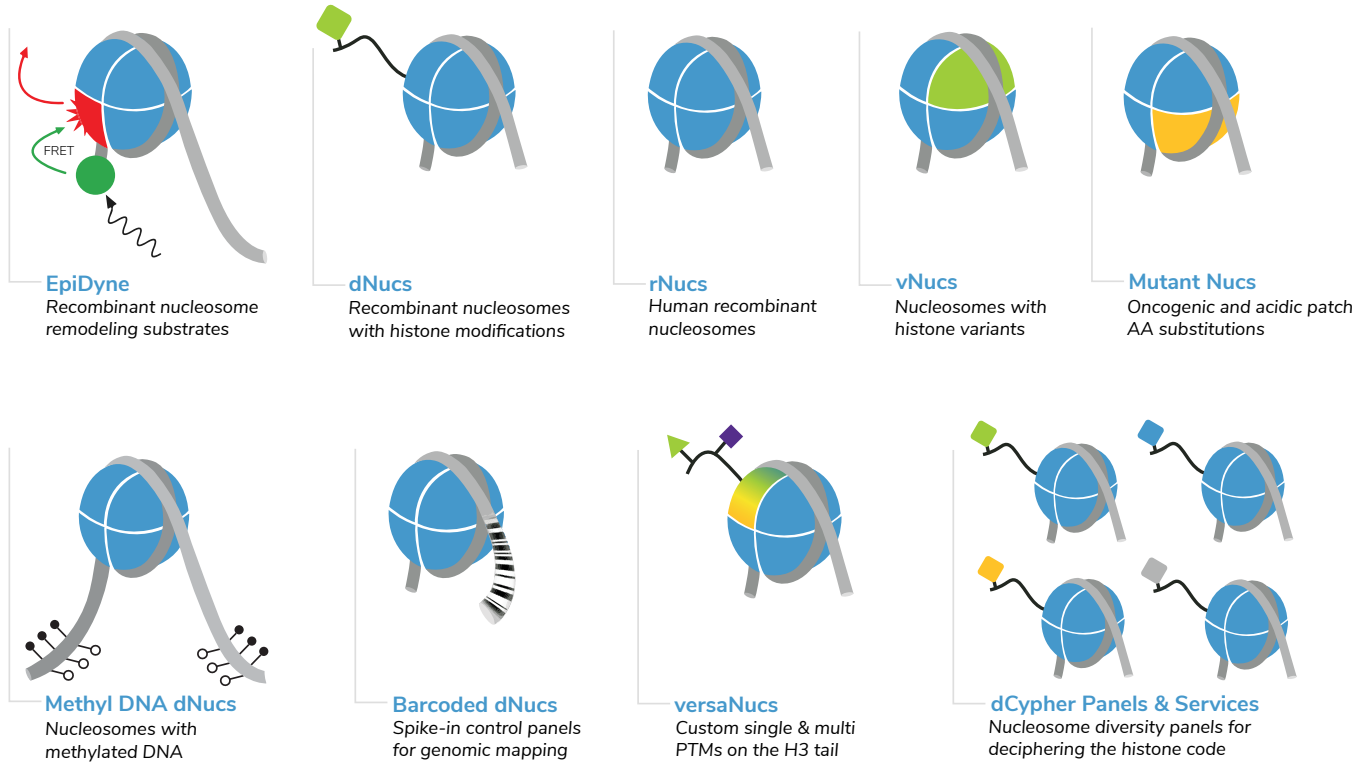


Functionalized  
Recombinant Nucleosomes  
for drug discovery and  
chromatin research



## Specialized recombinant nucleosomes

Nucleosomes are the natural target of readers, writers and erasers that interact with or modify chromatin. EpiCypher offers the largest portfolio of recombinant nucleosomes on the market. Designing experiments using these nucleosome substrates provides the biological context required to elucidate chromatin function. Leverage EpiCypher's nucleosome collection to advance your biochemical research or drug discovery program.



### Features

- Fully defined, homogeneous recombinant human nucleosomes
- Contain histone variants, mutations, post-translational modifications (PTMs), and/or modified DNA
- > 100 different nucleosomes available
- Biotinylated and non-biotinylated formulations
- Customized nucleosome development services are available

### Applications

- Enzyme assays
- Protein-protein interaction studies
- High-throughput screening (HTS)
- Inhibitor screening and validation
- Structural studies
- Antibody validation
- Sequencing data normalization
- Characterize chromatin remodeling enzymes

# Leverage nucleosomes for improved chromatin mapping: SNAP Spike-in Controls

SNAP (Sample Normalization & Antibody Profiling) Spike-ins use panels of highly pure, DNA-barcoded nucleosomes carrying widely-studied histone PTMs as quantitative spike-in controls for CUT&RUN, CUT&Tag, and ChIP-seq. Spike-ins are added to reactions and processed along with sample chromatin, providing a physiological control for reliable, quantitative experiments.

## Applications

- In situ validation of histone PTM antibody specificity
- Direct readout of assay success
- Troubleshoot experiments
- Monitor assay performance across experiments
- Normalize sequencing data

## K-MetStat Panel

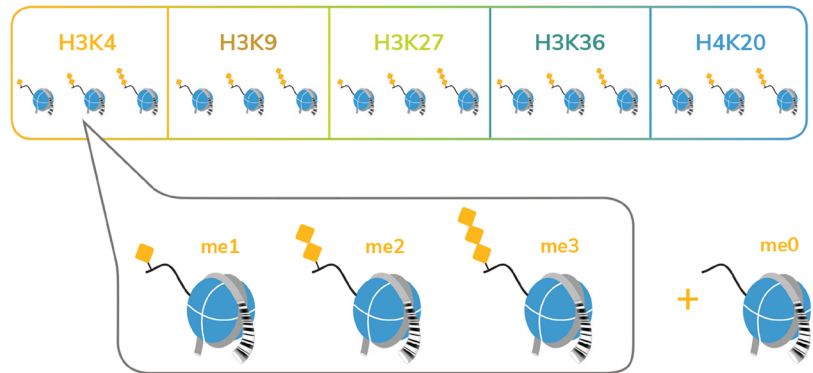


FIGURE 1

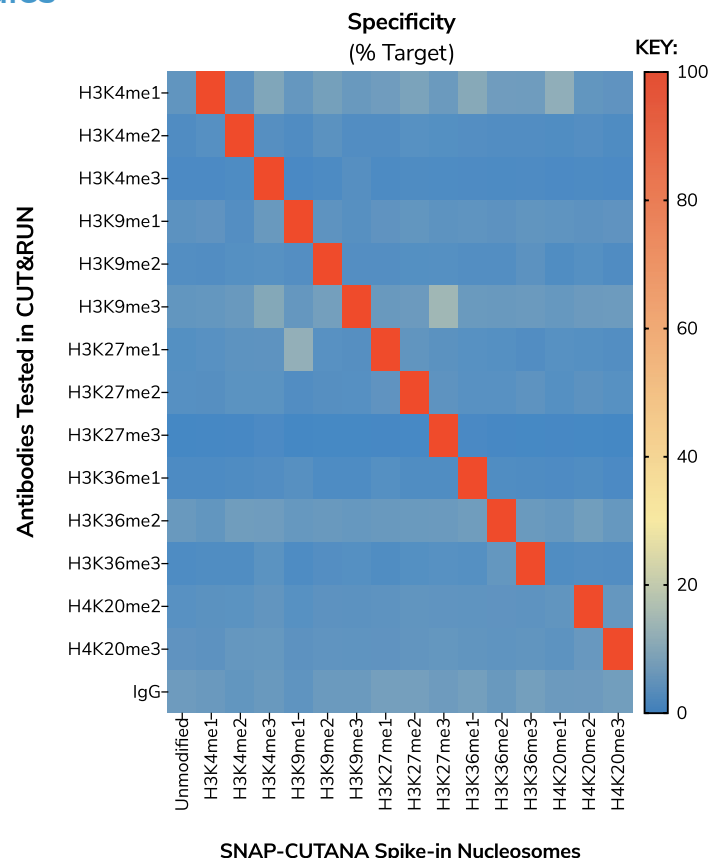
The K-MetStat Panel of nucleosome spike-in controls. Available for CUT&RUN, CUT&Tag, or ChIP-seq.

# Most histone PTM antibodies cross react - EpiCypher is using SNAP Spike-in technology to provide the best antibodies

- EpiCypher has screened >400 histone lysine PTM antibodies in chromatin mapping assays
- Over 70% are nonspecific – including highly cited antibodies (PMID: 30244833)
- Good antibodies exist - but require nucleosome context for accurate validation
- See the most current list of histone PTM antibodies validated for CUT&RUN mapping assays at [epicypher.com/cut-and-run-antibodies](http://epicypher.com/cut-and-run-antibodies)

FIGURE 2

The SNAP-CUTANA K-MetStat Panel was used to identify highly specific antibodies to histone lysine methylation PTMs in CUT&RUN. Each row is an antibody; columns show recovery of each nucleosome in the spike-in panel. Heatmap data are expressed relative to the antibody's intended target, with binding specificity represented as a gradient from low (blue) to high (red).



# Interrogate the histone code using the dCypher™ Platform

EpiCypher developed the dCypher™ Assay Platform to enable high-throughput, quantitative characterization of chromatin interacting proteins against biologically relevant nucleosome substrates.

## Advantages

- Accurately define chromatin interactions using library of >100 nucleosomes
- Nucleosomes supplied in 96-well plates
- Improved sensitivity vs. peptide arrays
- Lower protein input vs. arrays
- Use full-length proteins or domains
- HTS-compatible for inhibitor profiling

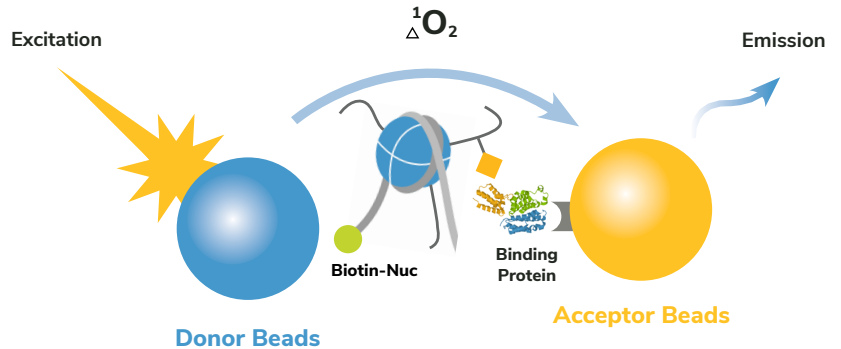


FIGURE 2

The dCypher™ platform uses a luminescent bead-based assay to quantify protein-nucleosome interactions.

# Leverage dCypher™ Assay Services to discover novel chromatin interactions

dCypher™ Services make it easy to profile your favorite chromatin binding proteins against diverse PTM-containing nucleosomes.

	1	2	3	4	5	6	7	8	9	10	11	12
A	147x601 rNuc (H3.1 unmod.)	H3.3 WT	H2AE61A	H3K4me1	H3K27me3	H4K12me1	H3K14ac	H3K27bu	H4K5ac	H2BK12ac	H3R8me1	H3R2,8,17cit
B	199x601 rNuc (H3.1 unmod.)	H3.3K4M	H2AE29K	H3K4me2	H3K36me1	H4K20me1	H3K18ac	H3K27cr	H4K8ac	H2BK20ac	H3R8me2a	H3K14ub
C	147x601 DNA	H3.3K9M	H2BE05A, E113A	H3K4me3	H3K36me2	H4K20me2	H3K18bu	H3K27ac, S28ph	H4K12ac	H2AR3me1	H3R8me2s	H2Aub1
D	199x601 DNA	H3.3K27M	Tailless	H3K9me1	H3K36me3	H4K20me3	H3K18cr	H3K27me3, S28ph	H4K16ac	H2AR3me2a	H3R17me1	H2AK119ub
E	H2AX	H3.3G34R	H3.1ND2	H3K9me2	H3.3K36me3	H3K4ac	tetraAc-H3 (K4,9,14,18ac)	H3S10ph	H4K20ac	H2AR3me2s	H3R17me2a	H2AK129ub
F	H2AXS139ph	H3.3G34V	H3.1ND32	H3K9me3	H3K79me1	H3K9ac	H3K4me3, K9,14,18ac	H3S28ph	tetraAc-H4 (K5,8,12,16ac)	H3R2me1	H4R3me1	H2BK120ub
G	H2AZ.1	H3.3G34W	H3.3ND32	H3K27me1	H3K79me2	H3K9bu	H3K23ac	H3.3S31ph	tetraAc-H3/H4	H3R2me2a	H4R3me2a	H2AK15ub
H	H2AZ.2	H3.3K36M	H4ND15	H3K27me2	H3K79me3	H3K9cr	H3K27ac	H3K36ac	tetraAc-H2A (K5,8,13,15ac)	H3R2me2s	H4R3me2s	Buffer only control

## Advantages of dCypher Services

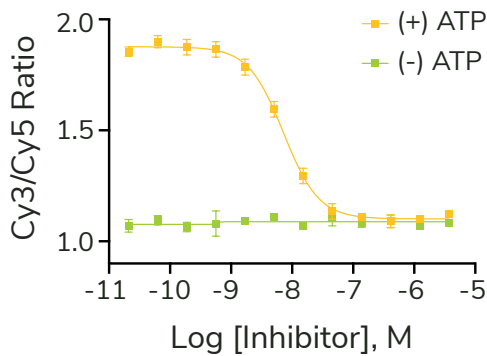
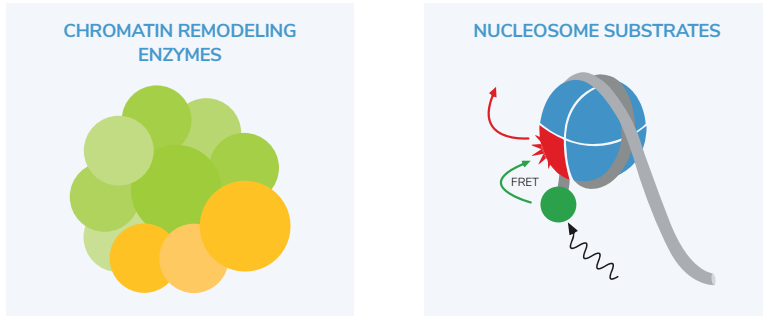
- Access entire EpiCypher nucleosome library (example selection above - custom nucleosome development available)
- EpiCypher meticulously optimizes assay conditions: protein / substrate concentration, salt, pH, co-factors
- No prior knowledge of binding activity needed – discover new interactions!
- Recent publications from dCypher service projects include analysis of DNMT3A (PMID: 31485078 & 33986537), PHIP (PMID: 34819353), MLL1 (submitted), and BPTF (submitted).

# Advanced chromatin remodeling research with EpiDyne® Assays & Services

SWI/SNF chromatin remodeling enzymes represent an important class of drug targets (PMID: 25203320). However, the absence of quantitative, physiological assays and high-quality recombinant enzymes has greatly slowed therapeutic discovery.

The EpiDyne® platform combines EpiCypher's expertise in nucleosome manufacturing and chromatin biology to deliver first-in-class products and services for chromatin remodeling research.

## Products



## Advantages

- EpiCypher is the **only** provider of enzymatically active SMARCA4/BRG1, SMARCA2/BRM, and SMARCA5/SNF2H
- Direct, quantitative analysis of chromatin remodeling activity on a pure nucleosome substrate
- HTS-compatible for drug discovery
- Many readouts available (radioactivity, FRET, restriction enzyme accessibility)

## Characterization of a SWI/SNF inhibitor using EpiDyne® Assays

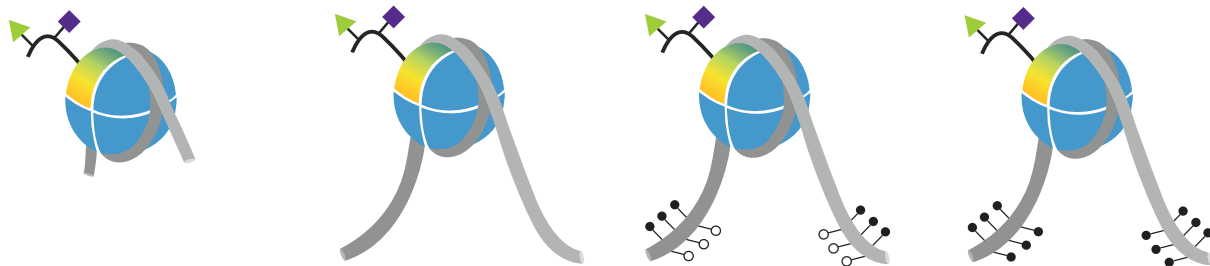
FIGURE 4

Dose-dependent inhibition of SMARCA4 remodeling activity is observed when using the Novartis inhibitor BRM014/Compound 14 (Papillon et al. 2018; Jagani et al. 2019) and EpiDyne-FRET nucleosomes.

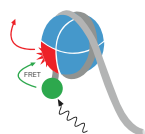
## Customized nucleosome development services

EpiCypher has established advanced techniques for modified histone development and nucleosome assembly. These platforms can be combined for custom nucleosome development services to address your specific project needs.

- Example 1: Build a nucleosome panel comprising of various DNA templates and H3 PTMs with versaNuc™ services.
- Example 2: Generate EpiDyne® substrates carrying histone PTMs.
- Example 3: Develop dNucs to study exotic PTMs.



# Products and Services



## EpiDyne® Remodeling Assays

### Enzymes

SMARCA4/BRG1	15-1014	100 rxn
SMARCA2/BRM	15-1015	100 rxn
SMARCA5/SNF2H	15-1024	100 rxn
ACF	15-1013	100 rxn

### Remodeling Substrates, Fluorescent Readout

EpiDyne® FRET Substrate	16-4201	50 µg
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### Remodeling Substrates, Non-Fluorescent Readout

ST601-GATC1	16-4101	50 µg
ST601-GATC1, Biotinylated	16-4111	50 µg
ST601-GATC1, 50-N-66, Biotinylated	16-4114	50 µg
ST601-GATC1,2, Biotinylated	16-4112	50 µg
ST601-GATC1,2, 50-N-66, Biotinylated	16-4115	50 µg
ST601-GATC1,2,3, Biotinylated	16-4113	50 µg
ST601-GATC1,2,3, 50-N-66, Biotinylated	16-4116	50 µg

### EpiDyne® Chromatin Remodeling Services

Choose your downstream readout and our expert scientists will help you select the ideal assay detection method, optimize experimental conditions, and provide detailed data reports.

- Inquire - [info@stratech.co.uk](mailto:info@stratech.co.uk)
- Learn more - [epicypher.com/epidyne-services](http://epicypher.com/epidyne-services)
- EpiDyne assays in publications - PMID: 33144586

## ORDERING INFO

[www.stratech.co.uk/epicypher](http://www.stratech.co.uk/epicypher)

[www.stratech.co.uk](http://www.stratech.co.uk)

+44 (0) 1638 782600

[orders@stratech.co.uk](mailto:orders@stratech.co.uk)

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for uk  
universities



we offer a  
full product  
guarantee



outstanding  
technical  
support



## SNAP Spike-in Controls

### For CUT&RUN and CUT&Tag

SNAP-CUTANA™ K-MetStat Panel	19-1002	50 rxn
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### For ChIP-seq

SNAP-ChIP® K-MetStat Panel	19-1001 / 19-1100	20 / 200 µL
SNAP-ChIP® K-AcylStat Panel	19-3001 / 19-3100	20 / 200 µL
SNAP-ChIP® OncoStat Panel	19-2001 / 19-2100	20 / 200 µL

### SNAP-Certified Antibody Screening Services

SNAP antibody screening identifies histone PTM antibodies that hit their mark in your preferred assay: CUT&RUN, CUT&Tag, or ChIP-seq.

- Antibody Screening Services - contact [info@stratech.co.uk](mailto:info@stratech.co.uk)
- See our full list of validated antibodies - [epicypher.com/antibodies](http://epicypher.com/antibodies)



## dCypher™ Panel & Services

Nucleosome Full Panel	16-9001	1.5 µg/well
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### dCypher™ Interaction Discovery Services

Unlock our comprehensive library of recombinant nucleosomes and/or modified histone peptides to create highly sensitive and customized assays for discovering novel chromatin interactions.

- Inquire - [info@stratech.co.uk](mailto:info@stratech.co.uk)
- Learn more - [epicypher.com/dcypher-services](http://epicypher.com/dcypher-services)
- Applications of dCypher™ technology - PMID: 31485078



## Custom Nucleosome Development Services

If we don't have the nucleosome you need, we can make it. All EpiCypher nucleosome technologies can be leveraged for custom nucleosome development.

- Inquire - [info@stratech.co.uk](mailto:info@stratech.co.uk)
- Visit - [epicypher.com/custom-nucleosome-development-services](http://epicypher.com/custom-nucleosome-development-services)



**EpiCypher®**  
Bringing Epigenetics to Life

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