CUTANA™ ChIC/CUT&RUN Kit (Version 2.0)

Catalog No. 14-1048
Lot No. 21130003-01
Pack Size 48 samples

Product Description:

The CUTANA ChIC/CUT&RUN Kit (Version 2.0) contains materials for 48 CUT&RUN samples and is designed for multi-channel pipetting to realize the increased experimental throughput advantage of CUT&RUN. The kit includes positive (H3K4me3) and negative (IgG) control antibodies. A panel of bead immobilized H3K4 methyl designer nucleosomes (dNucs™) are spiked-in to control samples to monitor experimental success and aid troubleshooting (**Figure 2**). *E. coli* DNA is added to samples after pAG-MNase cleavage for experimental normalization. The kit is compatible with cells and nuclei, including cryopreserved and cross-linked samples. It is recommended to start with 500,000 cells, however comparable data can be generated using as few as 5,000 cells. The inclusion of controls and compatibility with diverse target types, sample inputs, and low cell numbers make the kit ideal for a variety of applications.

Kit Contents:

Kit contains buffers, enzymes, magnetic beads, control antibodies, spike-in controls, 8-strip tubes, and spin columns necessary to prepare and purify CUT&RUN DNA starting from cells or nuclei. See **User Manual Version 2.0** for additional materials and equipment required.

Storage and Stability:

DO NOT FREEZE KIT. Upon receipt, store components at room temperature, 4°C and -20°C (see **User Manual Version 2.0**). Stable for 6 months upon date of receipt.

Instructions for use:

See **User Manual Version 2.0**. ***This kit is not compatible with previous user manuals (Versions 1.0 and 1.1).***

References:

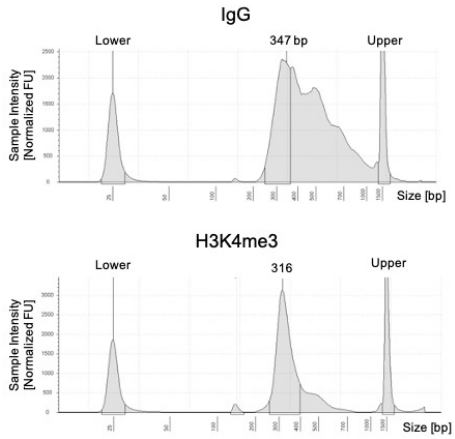

Figure 1: CUT&RUN DNA Fragment Size Distribution Analysis. CUT&RUN was performed using the CUTANA ChIC/CUT&RUN Kit starting with 500,000 K562 cells. CUT&RUN DNA isolated from IgG (13-0042k) and H3K4me3 (13-0041k) kit control antibodies was used to prepare paired-end Illumina® sequencing libraries. Library DNA was analyzed by Agilent Tapestation®. This analysis confirmed that mononucleosomes were predominantly enriched in CUT&RUN (~300 bp peaks represents 150 bp nucleosomes + sequencing adapters).

		CUTANA Spike-in dNucs			
		Unmodified	H3K4me1	H3K4me2	H3K4me3
anti-IgG	Rep 1	27.96	18.39	24.48	29.17
	Rep 2	28.68	17.77	23.82	29.73
	Rep 3	27.21	17.90	25.43	29.45
anti-H3K4me3	Rep 1	3.92	2.52	3.81	100.00
	Rep 2	2.34	1.53	2.18	100.00
	Rep 3	3.23	2.20	3.04	100.00

Figure 2: CUTANA H3K4 MetStat Spike-in Controls. DNA-barcoded unmodified and H3K4-methylated dNucs were immobilized to Streptavidin Beads and spiked-in to CUT&RUN samples prior to the addition of either IgG (top) or H3K4me3 (bottom) kit control antibodies. The shell script for kit Version 2.0 (available on the product page at: www.epicypher.com/14-1048) was used to count instances of each barcoded dNuc in the CUT&RUN sequencing data. The proportion of read counts normalized to on-target (H3K4me3) are shown. The spike-ins confirmed that the control antibody specifically recovered the target

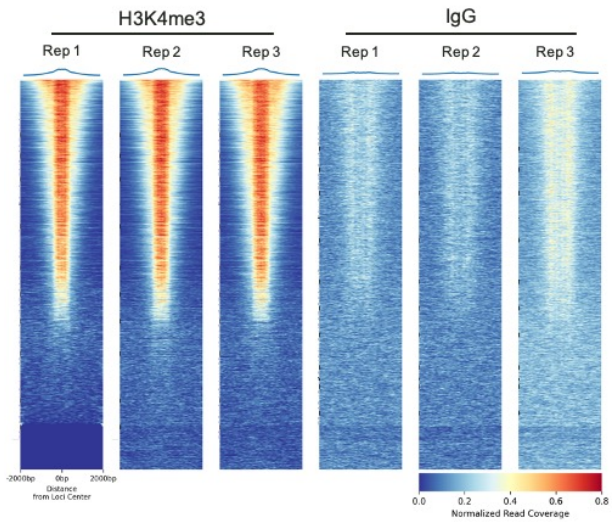

Figure 3: CUT&RUN genome-wide heatmaps. CUT&RUN data was generated using CUTANA ChIC/CUT&RUN Kit with 500,000 K562 cells. Three replicates ("Rep") of H3K4me3 (left) and IgG (right) kit control antibodies are shown in a heatmap. CUT&RUN signal (from 3-5 million paired-end reads) aligned to the transcription start site (TSS, +/- 2kb) are presented for 18,793 genes. High and low signal are ranked by intensity (top to bottom) and reflected by red and blue colors, respectively. Gene rows in each heatmap are aligned and sorted from high to low signal relative to H3K4me3 Rep 1 (far left), demonstrating reproducibility of the kit workflow.

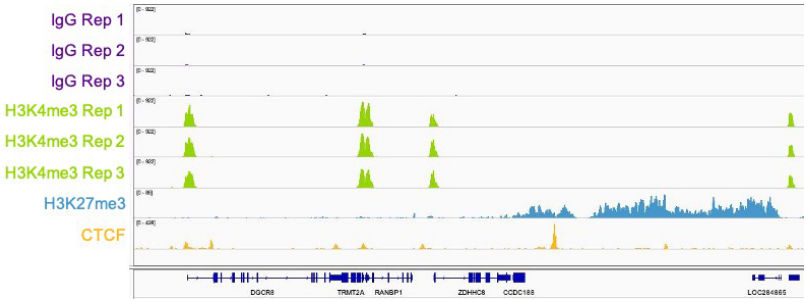

Figure 4: Representative gene browser tracks. CUT&RUN data was generated as described in Figure 3. A representative 150 kb window at the TRMT2A gene is shown for three replicates ("Rep") of IgG and H3K4me3 kit control antibodies. Representative tracks are also shown for H3K27me3 (Thermo Fisher Scientific Catalog No. MA5-11198) and the transcription factor CTCF (EMD Millipore Catalog No. 07-729) antibodies. The CUT&RUN kit produced the expected genomic distribution for each target. Images were generated using the Integrative Genomics Viewer (IGV, Broad Institute).