antibodies-online.com

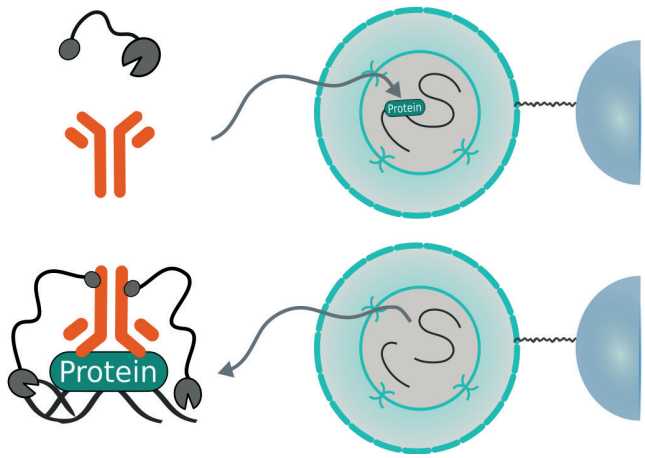
CUT&RUN
Evolution of ChIP-seq

Better DNA library with fewer sample

Discover the first CUT&RUN Sets from antibodies-online!

Cleavage Under Targets & Release Using Nuclease

Chromatin Immunoprecipitation (ChIP) is the established approach to study protein-DNA interactions. Yet, the method limits itself in regard to sensitivity and accuracy. CUT&RUN sets a new standard for chromatin profiling. Antibody-targeted controlled cleavage by micrococcal nuclease releases specific protein-DNA complexes into the supernatant. Fragmentation bias due to sonication is precluded. Only the targeted fragments migrate into solution, minimizing background noise. Less background enables lower amount of sample input and lower read depths compared to ChIP-seq.



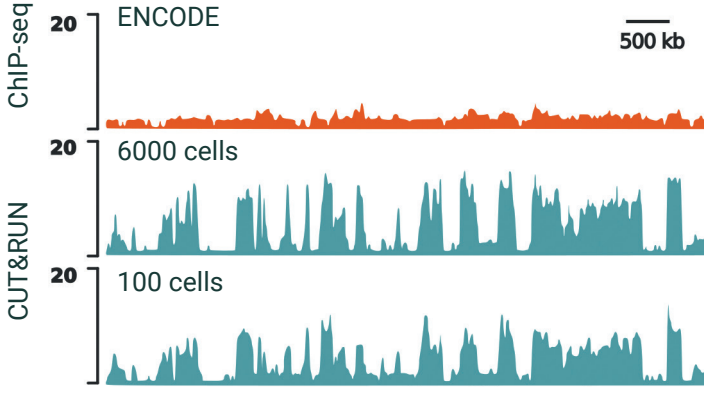
Better Data
Only 1/3 of sequencing reads required

Less Sample
10 x less sample in comparison to ChIP-seq

Less Signal Noise
Easier peak-calling – higher reproducibility

Optimized Protocol
Obtain purified DNA from cells within 1 day

ChIP-seq vs CUT&RUN results



Comparison of human H3K27me3 chromatin landscape in K562 cells, each with 7.5 million unique reads.

Orange:
XChIP-seq data ENCODE (~100.000 cells)

Green:
CUT&RUN data with 6000 (100) cells used as starting material. Peaks of CUT&RUN datasets are much more distinct even if only 100 cells were used.

Peter J. Skene and Steven Henikoff (2018):
„CUT&RUN: Targeted in situ genome-wide profiling with high efficiency for low cell numbers". Nature, Volume 13, pages 1006–1019, Figure 3. ENCODE X- ChIP-seq data (GSM733658) was used as comparison.

CUT&RUN Sets for mapping Protein-DNA Interaction

			R	M	
CUT&RUN Core ABIN6923134	✓				
CUT&RUN Core Sec ABIN6923133	✓	✓			
CUT&RUN Core Direct ABIN6923132	✓		✓		
CUT&RUN Core Complete ABIN6923131	✓	✓		✓	
CUT&RUN Pro ABIN6923138	✓				✓
CUT&RUN Pro Sec ABIN6923137	✓	✓			✓
CUT&RUN Pro Direct ABIN6923136	✓		✓		✓
CUT&RUN Pro Complete ABIN6923135	✓	✓		✓	✓

Positive and Negative Control Antibodies
Positive and Negative Control Antibodies are important to assess cleavage and chromatin release without the need to sequence the released DNA fragments.

Rabbit anti-Mouse Secondary Antibody
Utilize our Rabbit anti-Mouse Secondary Antibody to ensure efficient tethering of pA/G-MNase in the vicinity of your antigen.

Rabbit anti-DYKDDDDK Primary Antibody
The rabbit anti-DYKDDDDK antibody efficiently binds DYKDDDDK-tagged recombinant proteins and allows direct tethering of the pA/G-MNase fusion protein.

Mouse anti-DYKDDDDK Primary
The Mouse anti-DYKDDDDK Antibody efficiently binds DYKDDDDK-tagged recombinant proteins and allows indirect tethering of the pA/G-MNase fusion protein in conjunction with the Rabbit anti-Mouse Secondary Antibody.

Concanavalin A Beads
Concanavalin A coated magnetic Beads allow immobilization of living cells without affecting cell physiology while ensuring good sample retention through numerous wash steps to reduce background signal.

Summary of the CUT&RUN Protocol

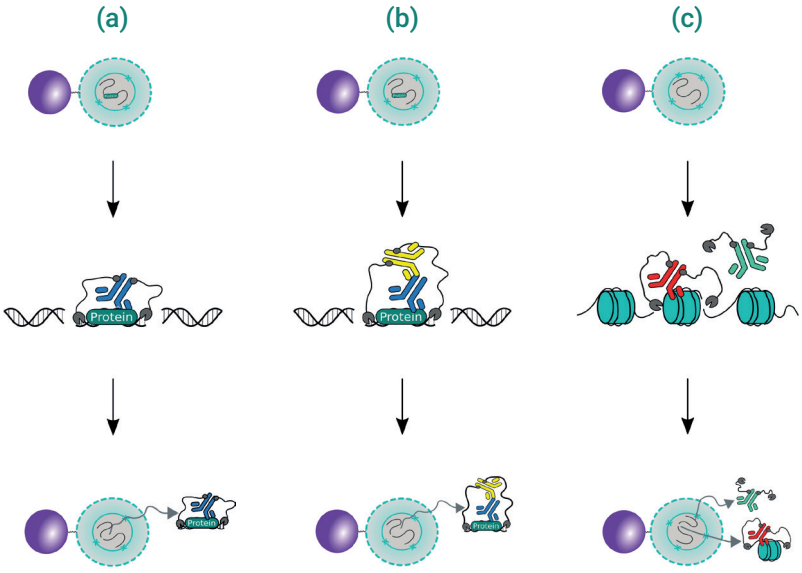
After immobilization on ConA beads (purple) and permeabilization, cells are incubated with:

(a) an antibody (blue) specific for the protein of interest.

(b) with a murine antibody (blue) specific for the protein of interest and a secondary rabbit anti-mouse antibody (yellow).

A Protein A and/or Protein G-MNase fusion protein (grey) is then tethered to the antibody's Fc region and the MNase cleaves the DNA under the target protein. Cleavage products diffuse out of the cell and can be further processed for sequencing.

(c) As positive (red) and negative controls (turquois) serve antibodies that either bind to an abundant protein or that do not bind to any antigen in the cell.



Benefit from antibodies-online's Expertise

Save Time and Money
Get the CUT&RUN Set tailored to your needs and save money compared to purchasing single components separately.

Consistency
A single source ensures a consistent set of reagents and protocol. Long-term availability and reproducibility guaranteed.

Proven Components
First set of matching high quality reagents on the market gives you a worry free access to CUT&RUN.

For more information, please contact:

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