Description: The CUT&RUN DNA Extraction Buffer provides enough reagent to support the preparation of 35 input samples for the CUT&RUN assay. This product is formulated for optimal performance in the CUT&RUN assay and each lot is tested and validated using the CUT&RUN Assay Kit #86652. An appropriate amount of Proteinase K (20 mg/ml) #10012 and RNAse A (10 mg/ml) #7013 should be added to this product right before use.

Background: Like the chromatin immunoprecipitation (ChIP) assay, Cleavage Under Targets and Release Using Nuclease (CUT&RUN) is a powerful and versatile technique used for probing protein-DNA interactions within the natural chromatin context of the cell (1-4). CUT&RUN provides a rapid, robust, and true low cell number assay for detection of protein-DNA interactions in the cell. Unlike the ChIP assay, CUT&RUN is free from formaldehyde cross-linking, chromatin fragmentation, and immunoprecipitation, making it a much faster and more efficient method for enriching protein-DNA interactions and identifying target genes. CUT&RUN can be performed in less than one day, from live cells to purified DNA, and has been shown to work with as few as 500-1,000 cells per assay (1,2). Instead of fragmenting all of the cellular chromatin as done in ChIP, CUT&RUN utilizes an antibody-targeted digestion of chromatin, resulting in much lower background signal than seen in the ChIP assay. As a result, CUT&RUN requires only 1/10th the sequencing depth that is required for ChIP-Seq assays (1,2). Finally, the inclusion of simple spike-in control DNA allows for accurate quantification and normalization of target-protein binding that is not possible with the ChIP method. This provides for effective normalization of signal between samples and between experiments.

Storage: Store CUT&RUN DNA Extraction Buffer at 4°C. This product is stable for at least 12 months. Please visit www.cellsignal.com for a complete listing of recommended companion products.

Directions for Use: For the CUT&RUN assay, we recommend adding 2 μl Proteinase K (20 mg/ml) #10012 and 0.5 μl RNase A (10 mg/ml) #7013 to 197.5 μl CUT&RUN DNA Extraction Buffer (200 μl per input sample) right before use. Then incubate with a 100 μl cell suspension at 55°C for 1 hr with shaking to extract genomic DNA.

Background References: