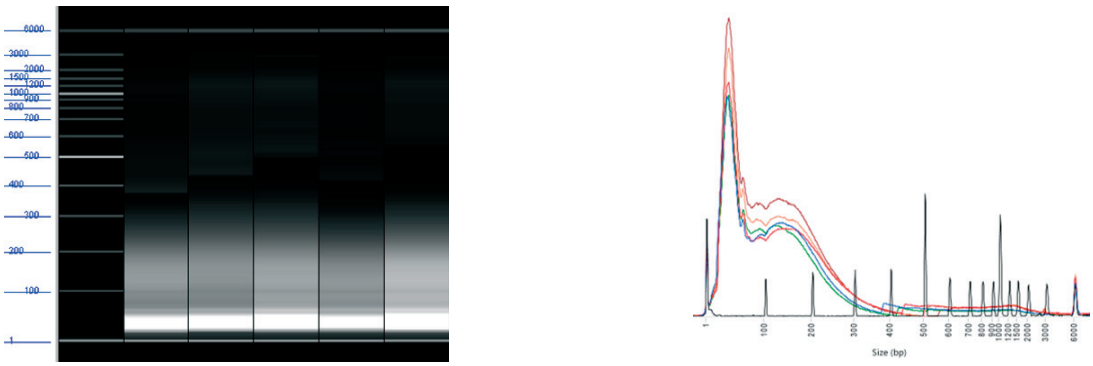
diagenode
Innovating Epigenetics Solutions

APPLICATION NOTE

Chromatin shearing with the Diagenode One

The Diagenode One is a new affordable solution for Chromatin shearing in ChIP analysis for small samples. Designed to fit any bench, it is the smallest and lightest Diagenode shearing device. The fully integrated cooling system and the all-new 20 and 50 µl microfluidic chips have been enhanced to deliver the highest performance.

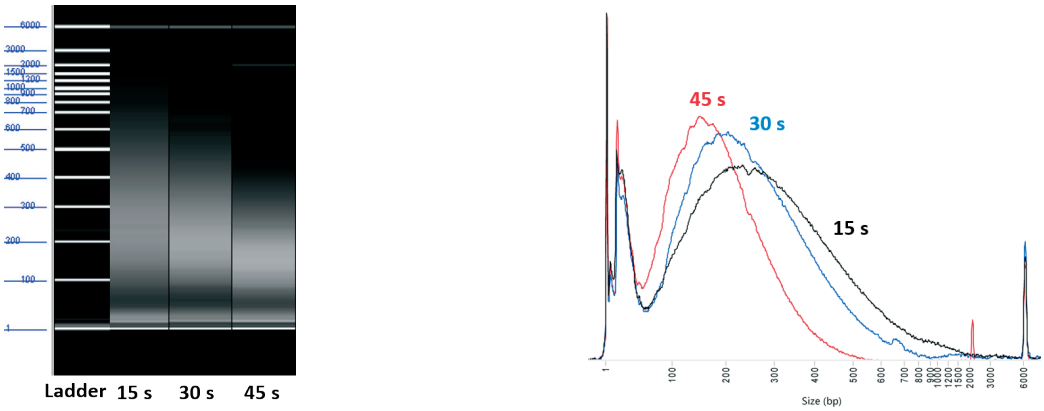
THE DIAGENODE ONE PROVIDES CONSISTENT AND REPRODUCIBLE CHROMATIN SHEARING



A B

Figure 1: Hela cells were fixed with 1% formaldehyde (for 10 minutes at RT). Cell lysis was performed using the Lysis Buffer tL1 of the Diagenode True MicroChIP kit. All samples were sheared using Diagenode One sonication device. DNA was isolated using Diagenode IPure v2 protocol. 1,5 µl of DNA (equivalent to 3,000 cells) was analysed using Fragment Analyzer™ (Advanced Analytical Technologies, Inc.). (A, B) 5 independent samples corresponding to 50,000 cells in 50 µl were sheared in 50 µl chips with 45 s settings. The shearing profile was represented in gel format (A) or electropherograms (B) using Fragment Analyzer™ software.

THE DIAGENODE ONE GENERATES FRAGMENTS SUITABLE FOR ChIP ASSAY



A B

Figure 2: Hela cells were fixed with 1% formaldehyde (for 10 minutes at RT). Cell lysis was performed using the Lysis Buffer tL1 of the Diagenode True MicroChIP kit. Samples corresponding to 50,000 cells in 50 µl were sheared in 50 µl chips using Diagenode One sonication device with 15 s, 30 s and 45 s settings. DNA was isolated using Diagenode IPure v2 protocol. 1,5 µl of DNA (equivalent to 3000 cells) was analysed using Fragment Analyzer™ (Advanced Analytical Technologies, Inc.). The shearing profile was represented in gel format (A) or electropherograms (B) using Fragment Analyzer™ software.

INCREASE SENSITIVITY OF YOUR ChIP ASSAY USING THE DIAGENODE ONE AND True MicroChIP KIT

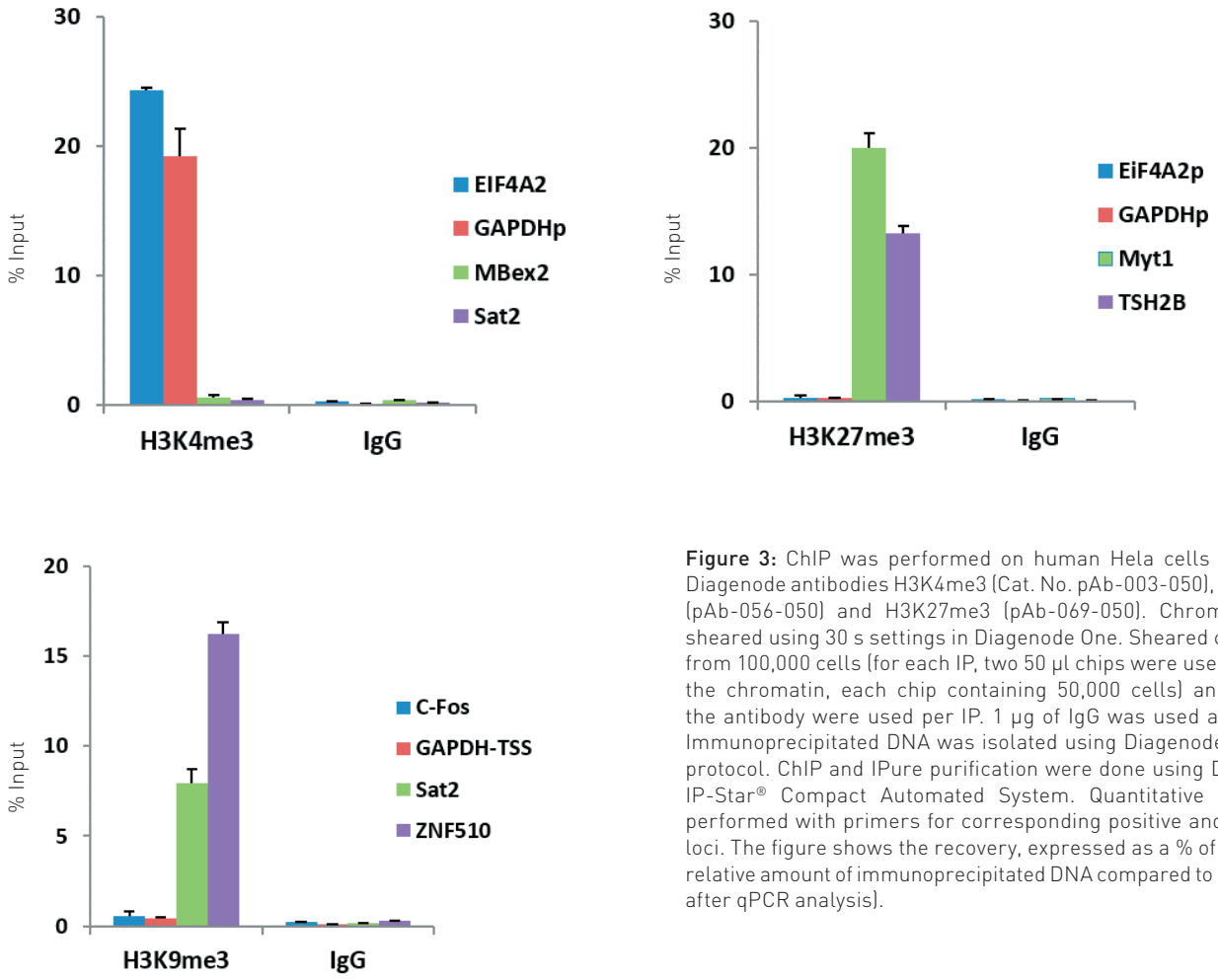


Figure 3: ChIP was performed on human Hela cells using the Diagenode antibodies H3K4me3 (Cat. No. pAb-003-050), H3K9me3 (pAb-056-050) and H3K27me3 (pAb-069-050). Chromatin was sheared using 30 s settings in Diagenode One. Sheared chromatin from 100,000 cells (for each IP, two 50 µl chips were used to shear the chromatin, each chip containing 50,000 cells) and 1 µg of the antibody were used per IP. 1 µg of IgG was used as control. Immunoprecipitated DNA was isolated using Diagenode IPure v2 protocol. ChIP and IPure purification were done using Diagenode IP-Star® Compact Automated System. Quantitative PCR was performed with primers for corresponding positive and negative loci. The figure shows the recovery, expressed as a % of input (the relative amount of immunoprecipitated DNA compared to input DNA after qPCR analysis).

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