Covaris®

Generating 3 kb DNA for Long-read Sequencing

DNA shearing is a critical step for disease state monitoring. DNA is sheared from large (~100 kb) down to small fragments (3 to 5 kb). Sheared DNA is optimal for genomic studies, primarily for human genetics research and consistent fragments enable several applications. For long-read sequencing, the DNA should be sheared into shorter fragments prior to sequencing, while ensuring reliability and reproducibility.

CHALLENGE

Developing a robust, reliable, reproducible, and simple assay to generate a specific sized DNA

SOLUTION

~ 3 kb fragments were generated from DNA isolated from blood and saliva sheared samples

Shearing Material
Lambda DNA
Human Genomic DNA
DNA from Blood, Saliva, and Cell Lines

Preparation of Plates
50 µL of DNA solution
(5 ng/µL to 20 ng/µL) is added to the
96 AFA-TUBE PST Plate (PN 520311)

Shearing with AFA
AFA conditions
6 PIP, 40% Duty Factor, 42R
Target: 3,000 bp

Shearing with AFA
QC acceptance criteria
> 2500 and < 3500 bp mode
< 10% CV across replicates of the same sample

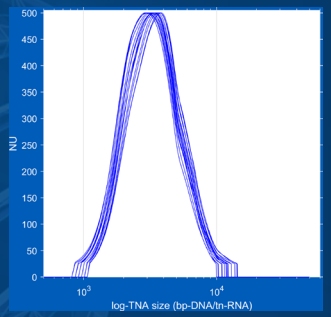
96 AFA-TUBE PST Plate (PN 520311)

R230 Focused-Ultrasonicator (PN 500620)

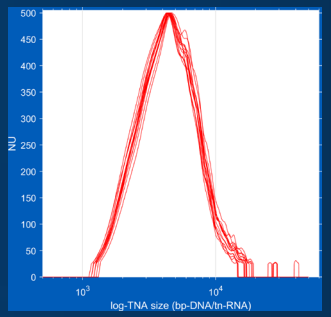
Accessories

- ThermoFisher Easy Pierce Thin Foil (PN AB-1720)
- Thin Foil Seal (PN 520235)
- Weight AFA-TUBE PP Plate (PN 500710)

3 kb Shearing



5 kb Shearing



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