

AFA-TUBE™

The Family of AFA Consumables Designed for Higher Throughput Automation

The AFA-TUBE is a new class of Covaris consumable specifically designed and qualified for use with Adaptive Focused Acoustics® (AFA®). AFA-TUBE streamlines non-contact sample processing workflows and offers high sample recovery without transfer steps. It has been precisely engineered from laser etched plastic for optimized cavitation. There is not a fiber in the vessel making AFA-TUBE ideal for high-throughput automation while minimizing the challenges of working with multiple biological and chemical samples. The embedded RFID ensures proper protocol and consumable usage for sample traceability.

Feature	Benefit
Multiple processes in a single vessel (e.g. shearing, non-contact mixing, lysis)	Workflow simplification
Unique, engineered polymer for isothermal control	No heat-induced bias or sample damage
RFID-based sample plate tracking	Sample chain of custody and multi-plate, batch processing
Uniformly distributed cavitation with AFA-energetics®	Faster processing
Standard labware SBS-plate format design	Compatible with most liquid handlers
Laser etched plastics without fiber	Ease of automation

Supported Applications and Processes:

- High-throughput biology sample processing
- Cell Lysis: mammalian, bacterial, yeast
- DNA/Chromatin shearing for NGS
- Proteomics
- DNA extraction from whole blood
- Compound screening
- Hit validation
- Target ID & validation

Extract HMW gDNA from Whole Blood

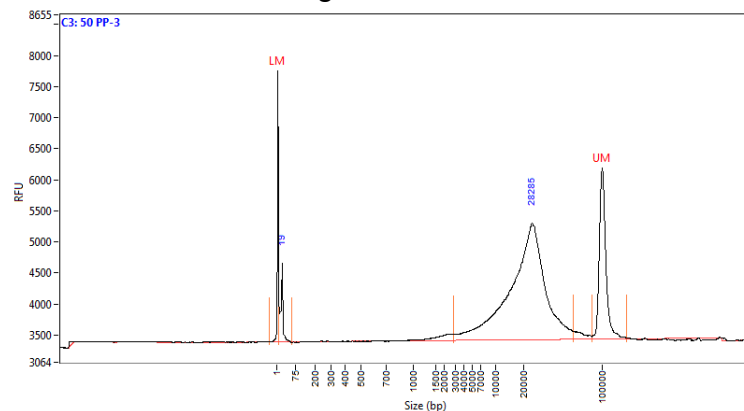
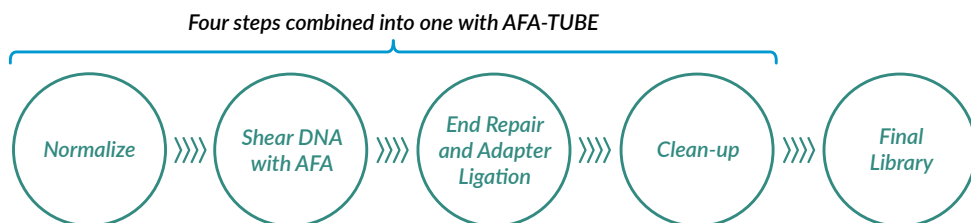


Figure 1. Size distribution profile of gDNA extracted (30 μ L of whole blood) in the Covaris truPOP Buffer using the high molecular weight (>20 Kb) extraction protocol. In scanning mode, processing time is 6 minutes for 96 samples.

Standard NGS Workflow



Benefits:

- Eliminate transfer steps
- Increase accuracy and precision
- Maximize sample recovery
- Enhance AFA-mediated sample clean-up

Narrow Size Distribution of gDNA Fragments from gDNA

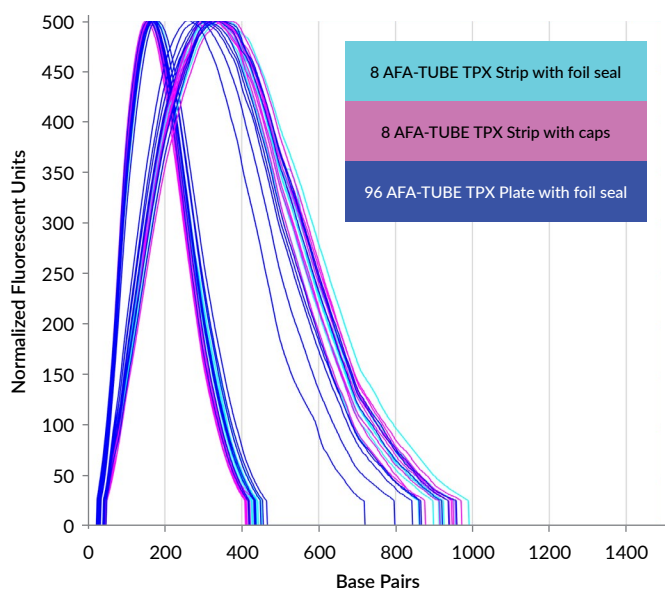


Figure 2. Using the two different formats and sealing options, DNA was analyzed with the Fragment Analyzer after shearing on the LE220-plus. Data is shown for the 8 AFA-TUBE TPX Strip and 96 AFA-TUBE Plate for 175 bp and 350 bp for 10 μ l. Results show high reproducibility and accuracy for all three configurations.

Highly Reproducible DNA Fragmentation Direct from Whole Blood

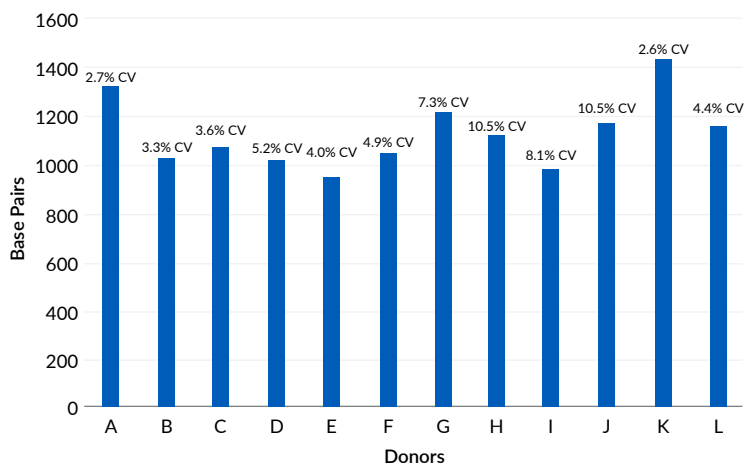


Figure 3. Graph shows highly reproducible DNA fragmentation profiles (30 μ l of whole blood) with low Coefficient of Variation. DNA fragment size modes are between 1 and 1.3 kb. Shearing to NGS compatible fragment size distributions (150 to 500 bp) can be achieved by adjusting the AFA conditions (not shown). High molecular weight DNA (40 kb) can be extracted by adjusting extraction buffer conditions (e.g. truPOP™ buffer from Covaris). Processing time is 30 seconds per column for 96 AFA-TUBE TPX Plate.

AFA Instrument Compatibility

	LE220-plus	LE220R-plus	LE220Rsc	R230 AFA Revolution
8 AFA-TUBE TPX Strip	✓	✓	✓	
96 AFA-TUBE TPX Plate	✓	✓	✓	✓
384 and 1536 AFA-TUBE TPX Plate (in development)			✓	✓

Ordering Information and Guidelines*

	8 AFA-TUBE TPX Strip	96 AFA-TUBE TPX Plate	384 AFA-TUBE TPX Plate	1536 AFA-TUBE TPX Plate
Part Number	520275	520272	In development	In development
Number of wells	8	96	384	1536
Min/Max Volume per well	5 to 200 μ l	5 to 200 μ l	In development	In development
Working Temperature	12 to 20 °C	12 to 20 °C	12 to 20 °C	12 to 20 °C

*Exact protocol and settings are application dependent.