Simple, high quality, and cost-effective library preparation solutions for NGS



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Quantabio's NGS Reagent Portfolio

sparQ DNA Library Prep Kit

- Simplified 2-step protocol in a single tube speeds up sample prep to 2.5 hours and minimizes sample loss
- Increased library yield enables construction of high quality DNA libraries from low input (250 pg) DNA samples
- Minimized bias improves coverage across difficult to sequence regions ensuring optimal results and reduced coverage gaps
- Improved overall sequencing workflow economics

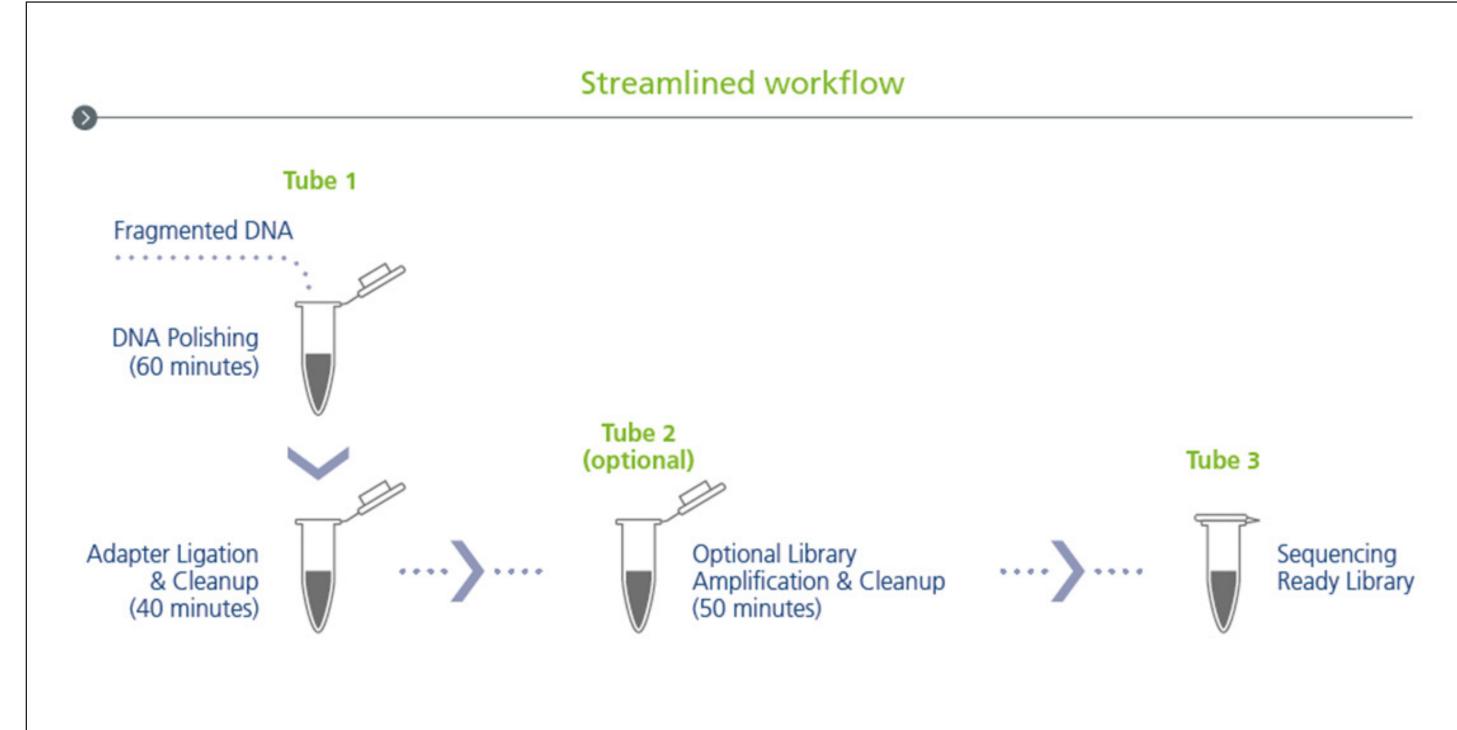
sparQ HiFi PCR Master Mix

• A high efficiency, high-fidelity and low bias PCR master mix for NGS workflows requiring DNA library amplification prior to sequencing

sparQ PureMag Beads

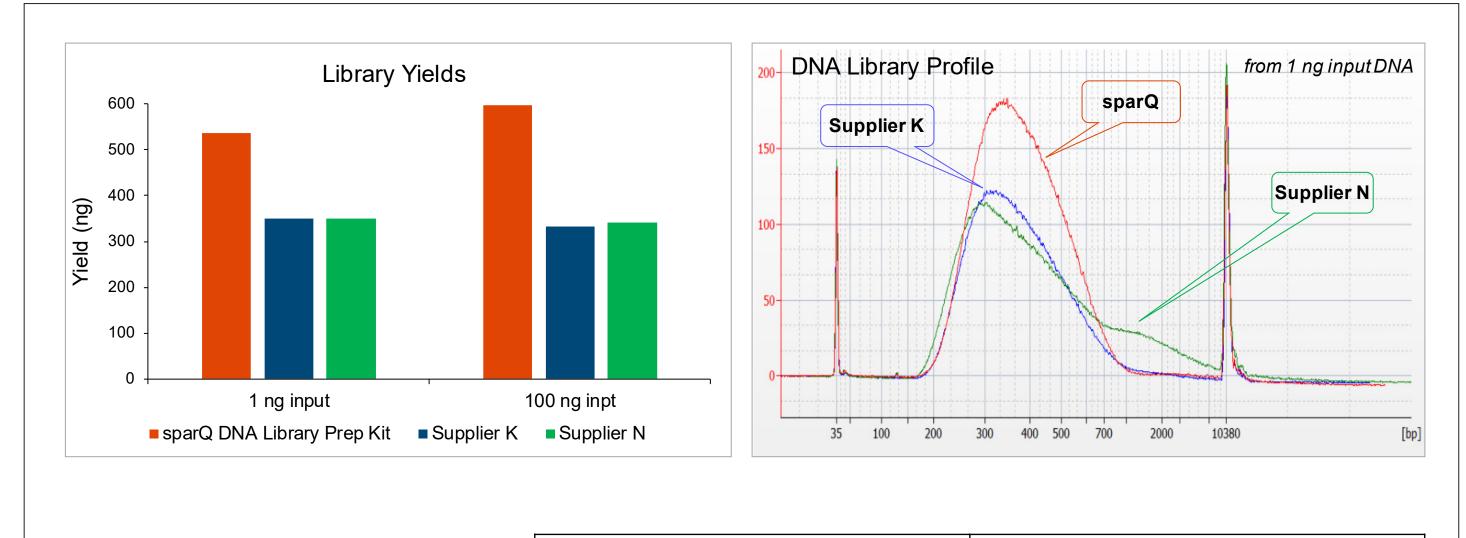
• A simple and reliable nucleic acid purification system for reaction cleanup and size selection in NGS workflows

Library Prep Workflow



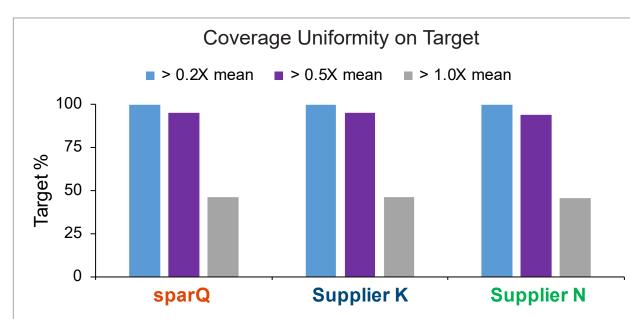
sparQ DNA Library Prep Kit uses optimized chemistry that combines end-repair and dA-tailing into a single step, followed by direct ligation of adapters. The unique formulation and simplified workflow greatly reduce the total processing and hands-on time, while ensuring high library yield and quality.

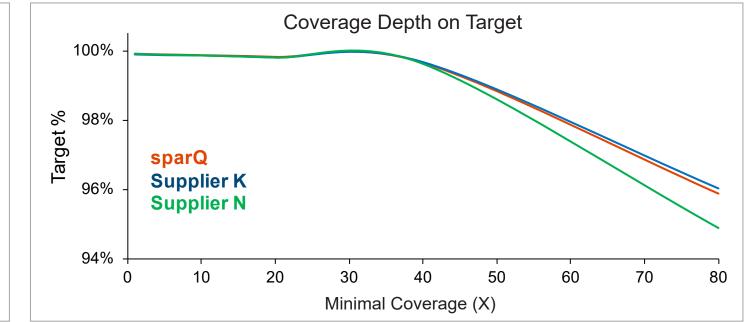
Yield & Quality Comparisons



		1 ng Input DNA		100 ng Input DNA	
		Mapped Reads*	DuplicationM	apped Reads*	Duplication
sparQ	with Library amplification	94.3%0	.07%	95.5%0	.04%
Supplier K		95.0%0	.09%	95.6%0	.04%
Supplier N		94.9%0	.07%	95.4%0	.03%
sparQ				95.6%0	.03%
Supplier K		PCR-Free		95.3%0	.02%
Supplier N				95.1%0	.02%

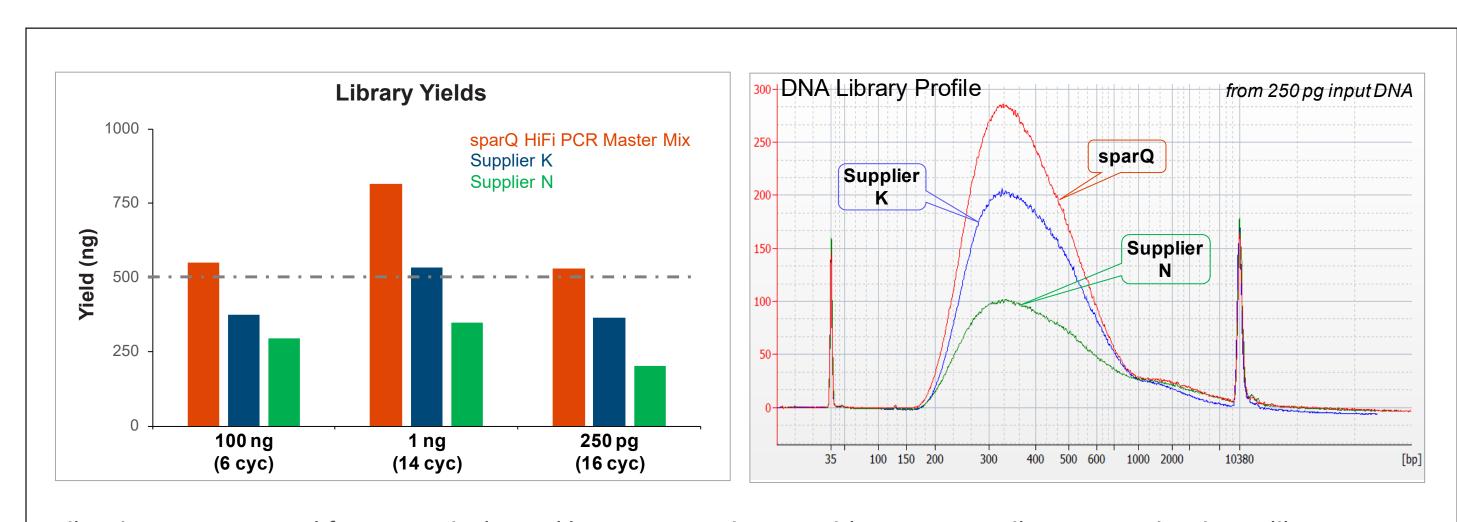
Target Enrichment Application with xGen® Acute Myeloid Leukemia Cancer Panel





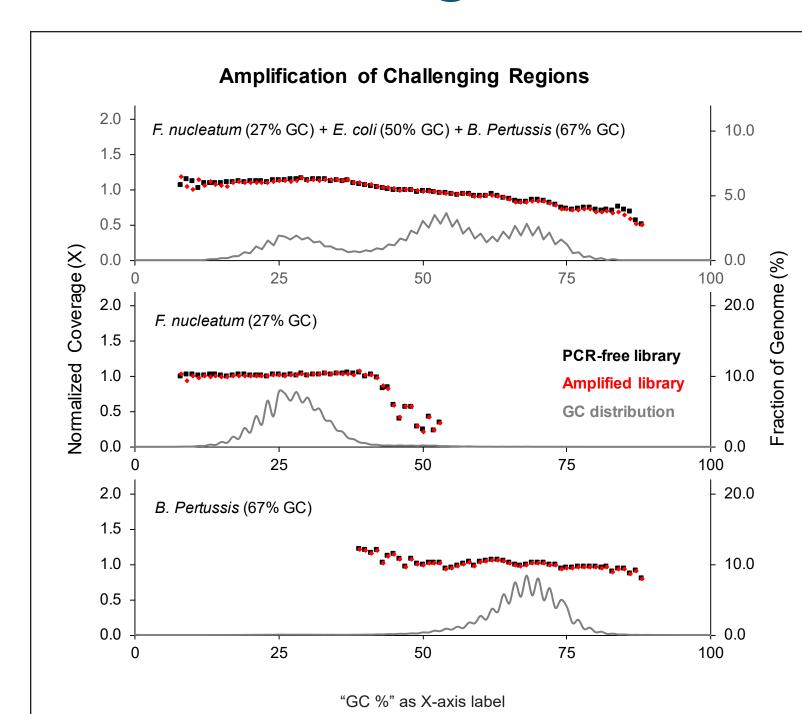
sparQ DNA Library Prep Kit offers significantly higher NGS library preparation efficiency and produces high quality DNA libraries. Libraries were prepared with Covaris-sheared bacterial genomic DNA mix (250 bp average size) and then amplified using 6 cycles for 100 ng input DNA or 13 cycles for 1 ng input DNA. DNA library profiles were analyzed using a high sensitivity DNA analysis kit on Agilent Bioanalyzer. Library quality was measured by alignment percentage and duplication rate post sequencing. High quality DNA Libraries prepared using sparQ DNA Library Prep Kit with Covaris-sheared human Coriell DNA NA12878 (300 bp average size) ensures superb performance of a downstream targeted sequencing application.

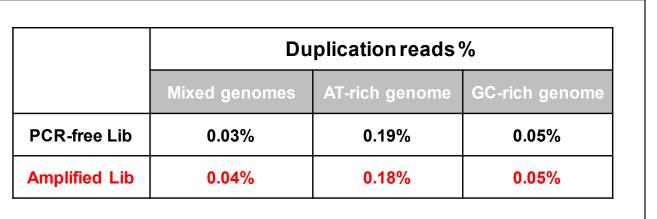
Superior Sensitivity & Efficiency



Libraries were prepared from Covaris-sheared human genomic DNA with sparQ DNA Library Prep Kit prior to library amplification. Pre-amplified libraries were then amplified using sparQ HiFi PCR Master Mix (orange), HiFi PCR Master Mix from Supplier K (blue), or Supplier N (green) with the identical amplification cycle numbers (6 cycles for 100 ng input DNA, 14 cycles for 1 ng input DNA, and 16 cycles for 250 pg input DNA). Amplified libraries were quantified with Qubit fluorometric quantitation method and qPCR-based quantification method (data not shown).

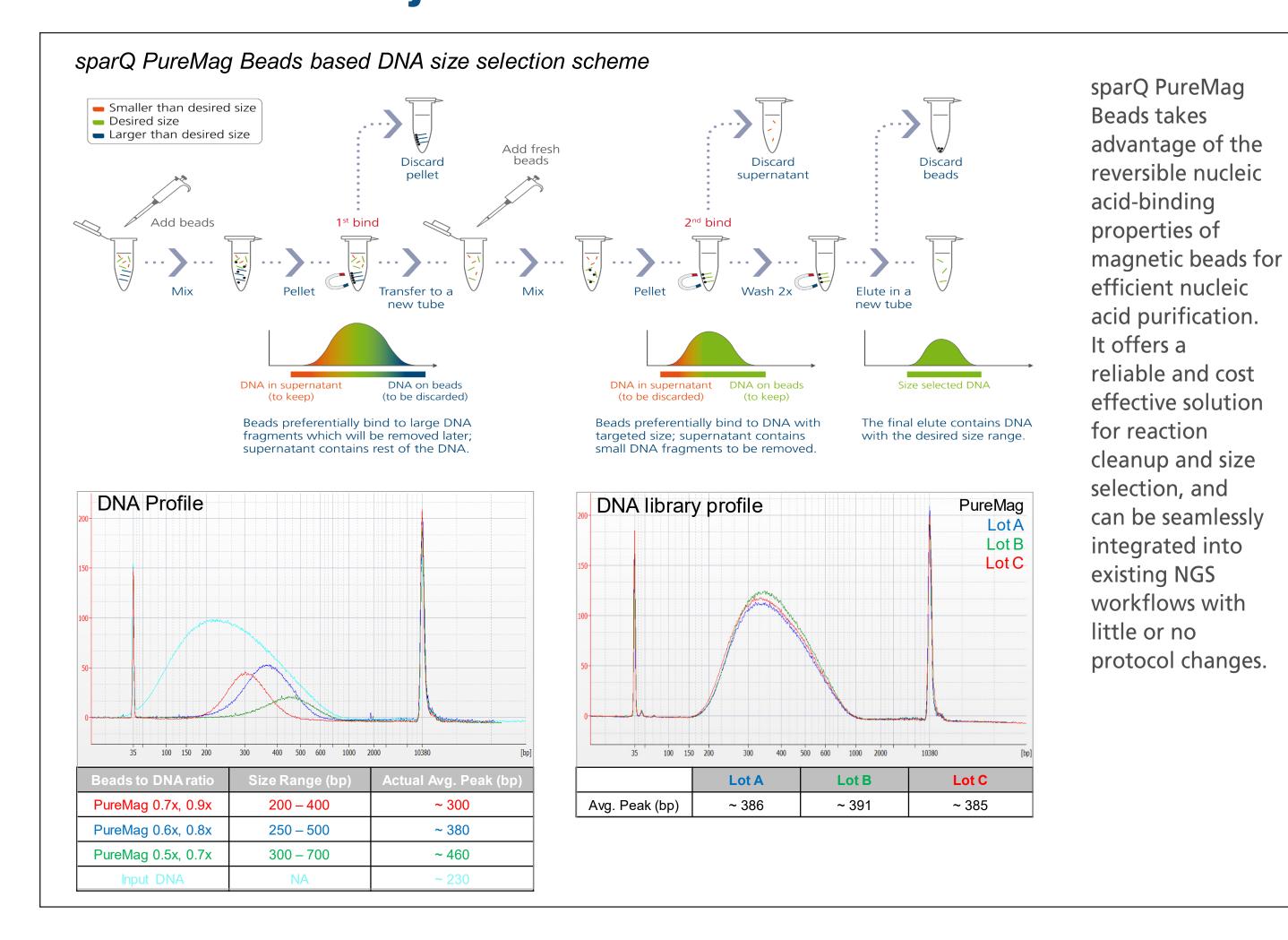
Uniform Coverage Across Challenging Genomic Regions





Library amplification with sparQ HiFi PCR Master Mix resulted in uniform coverage across a wide range of GC-content. Libraries were prepared by using sparQ DNA Library Prep Kit with 100 ng input DNA. Coverage depth against GC content of libraries amplified by sparQ HiFi PCR MM (red) were compared to corresponding libraries without amplification (black). GC-content distribution of targeted genomes is indicated by the gray line.

Consistent & Adjustable Size Selection



Conclusions

sparQ DNA Library Prep Kit

- 2-step protocol generates sequencing ready library in 2.5 hours
- 250 pg 1 μg of input DNA produces unbiased libraries
- High library yields from enzymes engineered for optimal sensitivity and efficiency
- Capable of PCR-free library prep workflow
- Simple and cost effective solution to streamline library prep (e.g., whole genome sequencing, targeted sequencing, ChIP-seq, cfDNA, etc.)

sparQ HiFi PCR Master Mix

- Increased amplification efficiency results in higher yields for NGS library amplification
- Unbiased amplification provides improved coverage across AT- and GC-rich regions

sparQ PureMag Beads

Fast, reliable DNA purification and size selection in NGS workflows