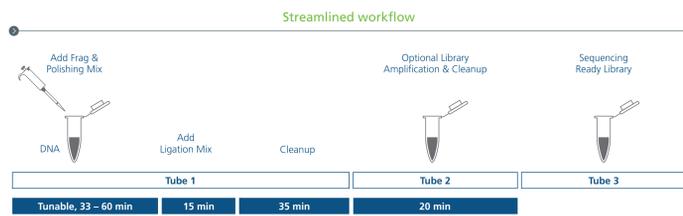


Streamlined single-tube solutions for high quality DNA library preparation



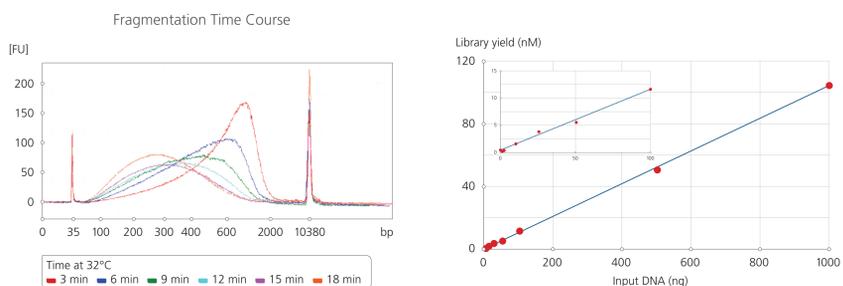
Marissa Bolduc, David Bays, Shuhong Li, Eleanor Kolosovski, Brian Komorous, Hongbo Liu and David Schuster
 QuantaBio, 100 Cummings Center Suite 407J, Beverly, MA 01915

sparQ DNA Frag & Library Prep Workflow



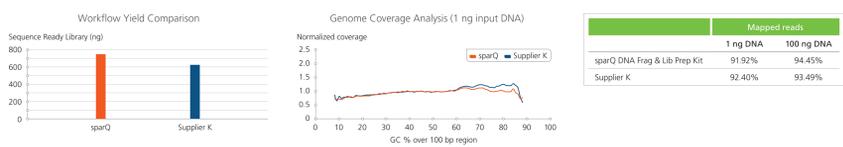
sparQ DNA Frag & Library Prep Kit combines enzymatic DNA fragmentation and DNA polishing (traditional end repair and dA-tailing) into a single tunable step.

Tunable Fragmentation Size Ranges for Varying DNA Inputs (1 ng–1 µg)

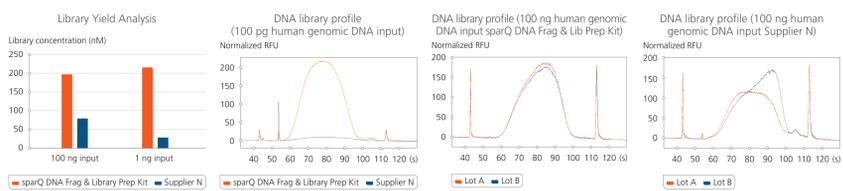


sparQ DNA Frag & Library Prep Kit is designed to produce DNA fragments which are tunable to specific sizes with superior DNA library preparation efficiency.

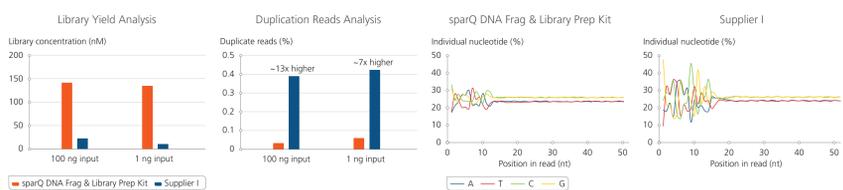
sparQ Compared to Other Fragmentation Technologies



Compared to Fragmentation Library Prep Kit from Supplier K, sparQ DNA Frag & Lib Prep Kit offers better library yield with even coverage across challenge genomic regions.



Compared to Fragmentation Library Prep Kit from Supplier N, sparQ DNA Frag & Lib Prep Kit offers superb library preparation sensitivity and efficiency, and more consistent fragmentation performance.



Compared to Fragmentation Library Prep Kit from Supplier I, sparQ DNA Frag & Lib Prep Kit offers higher library yield and better library quality (lower duplication rate and less fragmentation bias).

Workflow Comparison

	sparQ DNA Frag & Lib Prep Kit	Supplier K	Supplier I	Supplier N
Total Time / Hands-on Time	2.5 hours / 30 min	2.5 hours / 30 min	5 hours / 40 min	3 hours / 30 min
Input	1 ng – 1 µg	1 ng – 1 µg	1 ng fixed	100 pg – 500 ng
Pros	High library yield and sensitivity; simplified workflow; flexibility	Enzyme-based fragmentation	Tagmentation; integrated normalization	Enzyme-based fragmentation
Cons	Initial optimization for different inputs	Poor consistency and lack of reproducibility	Known GC bias; loss of complexity; distal effect; and fixed input amount	Inconsistent fragment size; low yield; poor reproducibility; GC bias
Workflow	Fragmentation & DNA Polishing ↓ Adapter Ligation ↓ Purification ↓ Library Amplification (optional) ↓ Purification	Fragmentation ↓ End Repair & A-tailing ↓ Adapter Ligation ↓ Purification ↓ Library Amplification ↓ Purification	Tagmentation ↓ Purification ↓ Library Amplification ↓ Purification	Fragmentation, End Repair, & A-tailing ↓ Adapter Ligation ↓ USER Excision ↓ Purification ↓ Library Amplification ↓ Purification

Introduction

Simple, rapid, and reliable solutions for library preparation are in great demand as the next generation sequencing (NGS) technology has become widely adopted in research, clinical and many other fields. Leveraging our innovative chemistries, world-class enzyme purity and rigorously controlled production and ISO13485 quality system, we have developed several high quality library preparation solutions for Illumina platforms to address the speed, performance, and throughput requirements of different DNA-seq applications.

QuantaBio's NGS Reagent Portfolio

sparQ DNA Frag & Library Prep Kit

- Streamlined workflow employs a unique enzyme mix to enable high quality DNA library preparation with tunable and reproducible DNA fragmentation profiles

sparQ DNA Library Prep Kit

- Simplified 2-step protocol in a single tube speeds up DNA library prep to 2.5 hours and minimizes sample loss

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

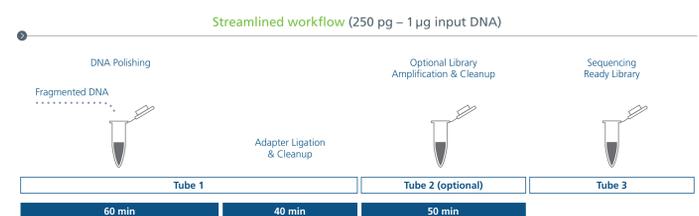
sparQ PureMag Beads

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

sparQ Fast Library Quant Kit

- Fastest qPCR-based library quantification in 40 minutes optimized for the Q qPCR instrument

sparQ DNA 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.

Library Yield & Quality Comparisons



sparQ DNA Library Prep Kit offers significantly higher NGS library preparation efficiency and produces high quality DNA libraries.

Superior HiFi Amplification Efficiency & Uniform Coverage



Library amplification with sparQ HiFi PCR Master Mix results in higher library yield and produces uniform coverage across a wide range of GC-content.