

sparQ Meets AVITI™

Designed for High Quality Sequencing Applications.

Rapid library preparation using the sparQ DNA Frag & Library Prep Kit

The sparQ DNA Frag & Library Prep Kit is optimized for enzymatic fragmentation of genomic DNA and streamlined construction of high-quality sequencing libraries, fully compatible with the Element Biosciences AVITI™ platform. By utilizing the appropriate adapters for the AVITI™ platform, this flexible workflow supports PCR-free library preparation with DNA inputs over 100 ng, or PCR-amplified library preparation from as little as 1 ng using the included PCR master mix.

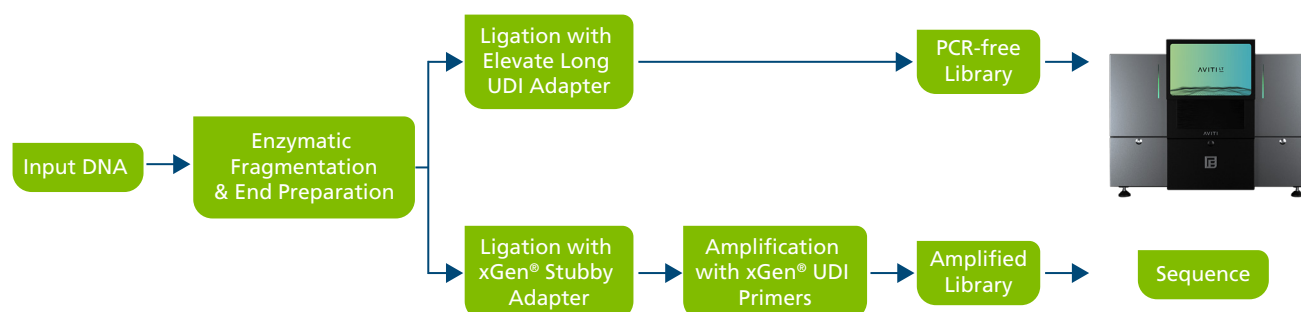


Figure 1 Library preparation workflow for the Element Bioscience AVITI™ sequencing platform. Input DNA undergoes enzymatic fragmentation and end repair to prepare libraries of the appropriate size. Depending on project aims and DNA input amount, libraries can proceed to either a PCR-free workflow by utilizing Element Biosciences Elevate Long UDI adapters or a PCR-amplified workflow using IDT xGen® Stubby Adapter. Final libraries are ready for sequencing on the AVITI™ platform.

Superior library prep efficiency and yields

The sparQ DNA Frag & Library Prep Kit is designed to produce consistent and reproducible fragmentation profiles from a variety of sample genomes and input amounts. Highly efficient library prep allows for sufficient yields even when utilizing a PCR-free workflow.

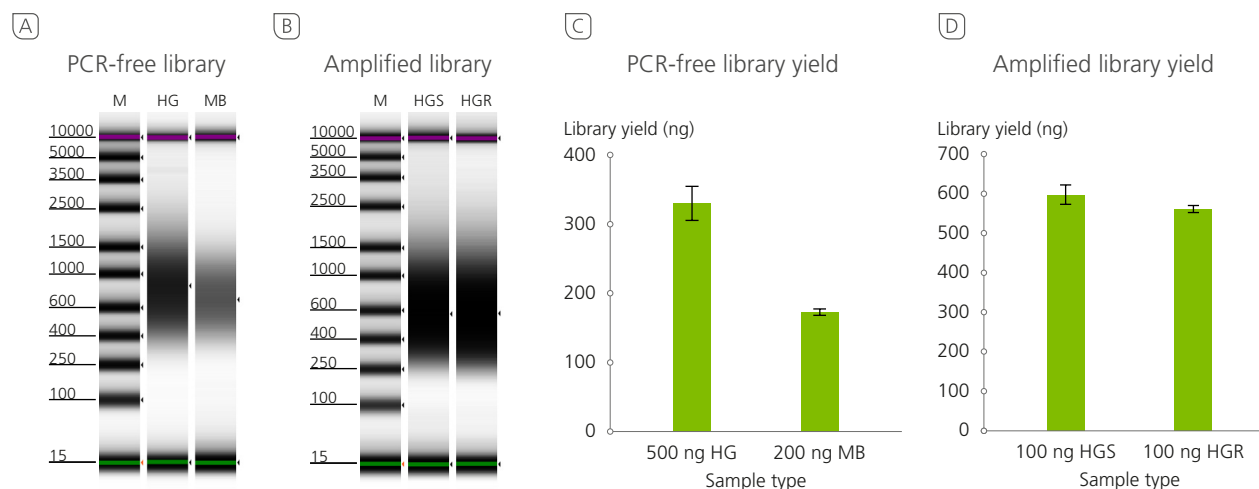


Figure 2 Library preparation using sparQ DNA Frag & Library Prep Kit. PCR-free libraries were generated from human genomic (HG) DNA and a mixed bacterial (MB) genomic DNA sample. Amplified libraries were made from 100 ng HG DNA using either the sparQ HiFi PCR Master Mix (HGS) included with the sparQ DNA Frag & Library Prep Kit or repliQa HiFi ToughMix (HGR). Fragmentation profiles were generated using TapeStation® D5000 ScreenTape®. Both (A) PCR-free libraries and (B) PCR-amplified libraries showed fragmentation of the expected size. Sufficient library yield was generated for sequencing using both the (C) PCR-free and (D) PCR-amplified workflow.

Rapid library preparation using the sparQ DNA Frag & Library Prep Kit

Excellent sequencing metrics from the AVITI™ platform — high mapping percentage and low duplication artifacts — are achieved with the sparQ DNA Frag & Library Prep Kit using both PCR-free and PCR-amplified workflows.

Input DNA	PCR-free Workflow		PCR-amplified Workflow	
	HG (500 ng)	MB (200 ng)	HGS (100 ng)	HGR (100 ng)
Duplication Rate (%)	4.1	11.6	3.1	3.0
Mapped Reads (%)	98.6	87.6	99.6	99.7
Average Coverage	25X		14x	16x

Table 1 sparQ DNA Frag & Library Prep Kit generates high quality DNA libraries for the Element Biosciences AVITI™ platform. PCR-free libraries were generated from human genomic (HG) DNA and mixed bacterial (MB) genomic DNA samples. Amplified libraries were made from 100 ng HG DNA using either the sparQ HiFi PCR Master Mix (HGS) included with the sparQ DNA Frag & Library Prep Kit or repliQa HiFi ToughMix (HGR).

Uniform coverage across a wide GC-spectrum

The sparQ chemistry enables high-quality library construction with even coverage across a broad GC-spectrum, including challenging GC- and AT-rich regions. The sparQ DNA Frag & Library Prep Kit delivers consistent coverage across the majority of genomic targets, reducing the need for additional sequencing and ultimately lowering sequencing depth requirements and overall costs per sample.

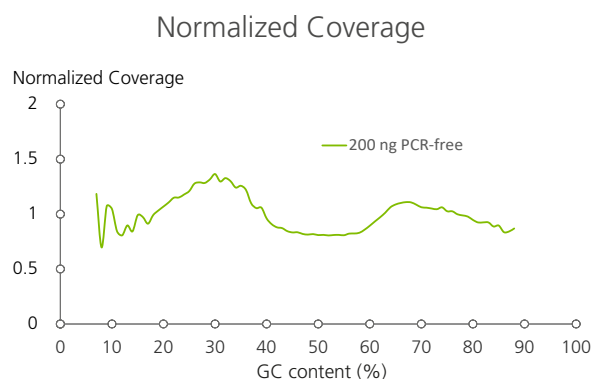


Figure 3 Normalized sequencing coverage across GC content for a mixed bacterial (MB) genomic DNA sample. Library was prepared from 200 ng of MB genomic DNA using the PCR-free workflow of the sparQ DNA Frag & Library Prep Kit. The resulting library demonstrated robust coverage across varying GC content, highlighting the kit's suitability for complex microbial samples.

ORDER INFO

Product Name	Quantabio Catalog Number	Size
sparQ DNA Frag & Library Prep Kit - 24	95194-024	24 rxns
sparQ DNA Frag & Library Prep Kit - 96	95194-096	96 rxns
repliQa HiFi ToughMix - 25	95200-025	25 rxns
repliQa HiFi ToughMix - 100	95200-100	100 rxns
repliQa HiFi ToughMix - 500	95200-500	500 rxns
sparQ HiFi PCR Master Mix	95192-050	50 rxns (1 x 1.25 ml)
sparQ HiFi PCR Master Mix	95192-250	250 rxns (5 x 1.25 ml)

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