Element Biosciences

OFFICIAL INDIA CHANNEL PARTNER
Genique Lifesciences™

Shift your science

AVITI™ gives scientists the freedom to unleash creativity and accelerate discovery for biological insights



Your engine for genomic innovation

The Element AVITI System reimagines next-generation sequencing (NGS) to bring affordable, world-class sequencing capability to all labs. This benchtop instrument upends establishment models with boundless scalability and the dynamism to expand into cellular profiling.

A low-throughput model, the Element AVITI System LT, further lowers the barrier to NGS entry with access to the same groundbreaking technology at a lower instrument cost.

Flexibility
Access applications with short- and long-read sequencing.

Affordability
Accelerate timelines with per-run costs that erase large batching.

Performance
Distinguish true variants from errors with accurate, reliable data.



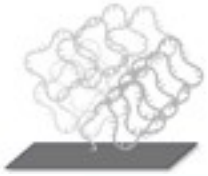
As elemental as ABC

Avidite base chemistry (ABC) leverages the power of avidites and PCR-free library amplification to define an entirely unique approach to sequencing. From scarless DNA to reduced wasted reads due to index hopping and optical duplication, ABC redefines what high-quality and low-cost sequencing can mean.



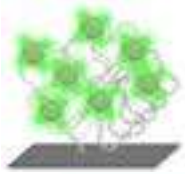
Circularization

A DNA library molecule attaches to low-binding surface chemistry coating the flow cell. A capture primer immobilized to the coating joins the library ends to circularize the DNA library molecule and prepare for PCR-free amplification.*



Amplification

Rolling circle amplification (RCA) copies the circularized DNA library molecule, creating a continuous strand bound into a polony. Only the circularized DNA library molecule is copied, neutralizing PCR artifacts to replicate DNA without distortion.

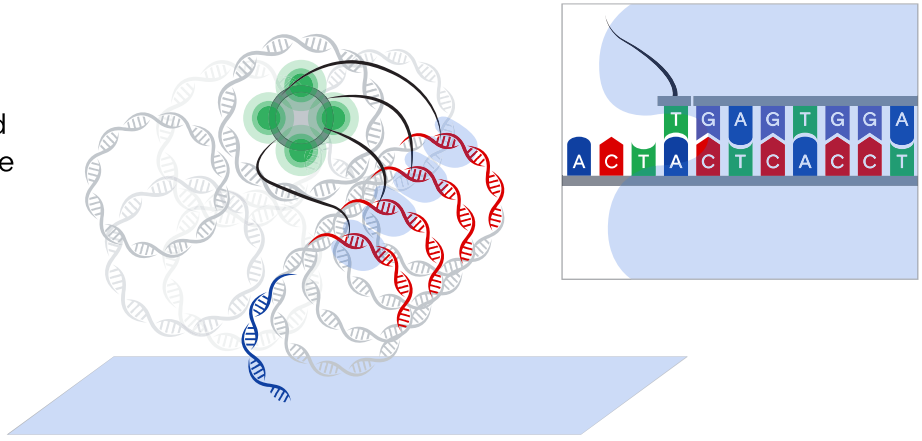


Sequencing

Avidites bind to the polony at multiple sequencing sites, creating a stable complex for imaging. Ultratight binding ensures signal persitance for precision base calling with a 100-fold reduction in reagent concentration.

Anatomy of a polony during sequencing

A polony is a continuous DNA strand that is bound with avidites at multiple sites during sequencing.



* RCA can also amplify manually circularized libraries.

Go further with Q50+

High quality delivers more usable data and improves sensitivity for variant detection and other applications that require accuracy. The quality benchmark is Q30. With Cloudbreak Freestyle™ routinely exceeding Q40 and Cloudbreak UltraQ™ delivering ≥70% of reads at Q50 and ≥90% of reads at Q40, AVITI sequencing sets a new standard for sequencing accuracy.

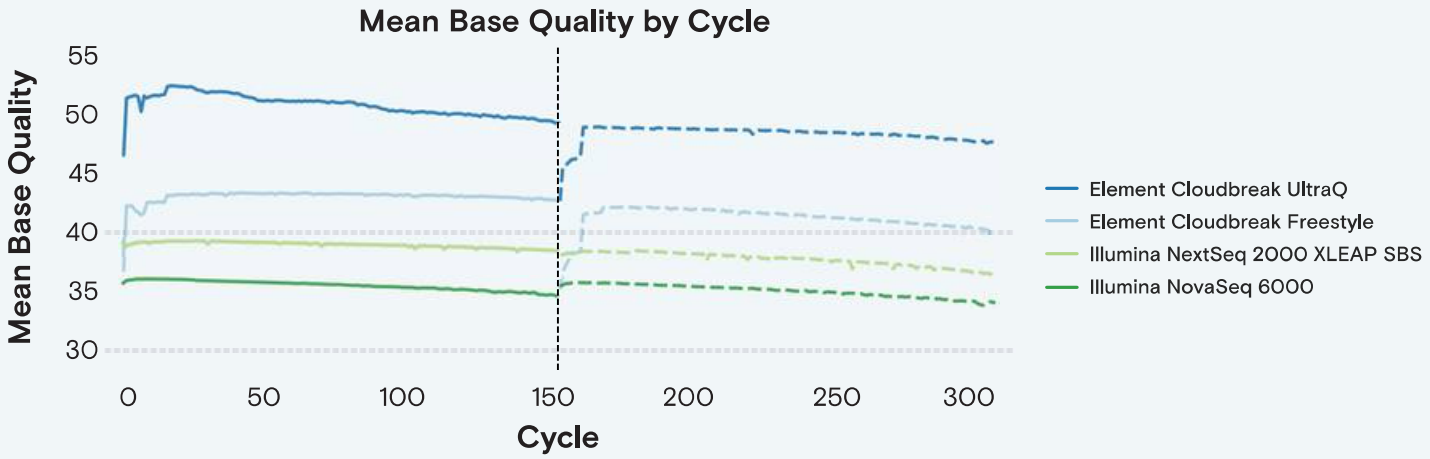


Figure 1. AVITI maintains Q30–Q50+ base quality even through the challenging sections at the ends of 150 bp reads.[1]

The standout quality of AVITI data is also evident in difficult, mutation-rich hotspots. RCA strengthens accuracy from the start by minimizing errors introduced through template amplification. Optimized enzymes and bioinformatics methods drive data to high-accuracy completion.

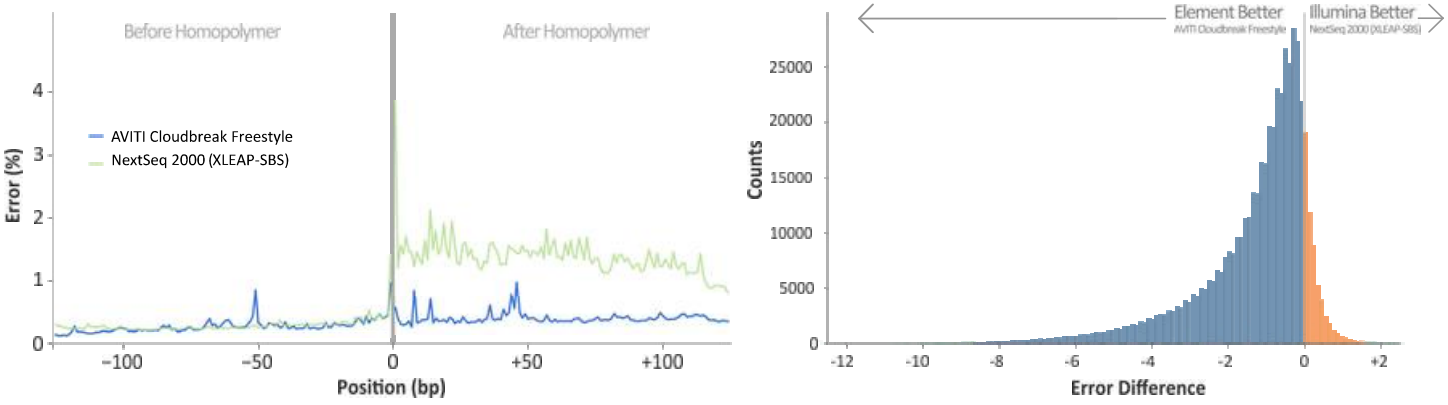


Figure 2. The AVITI error rate remains low following a long homopolymer (> 11 bp) while other systems suffer an average 3-fold increase (left). This performance extends across the majority of long homopolymers in the human genome (right).

Plug in any library prep

Extensive partnerships with third-party library prep providers let researchers craft an end-to-end solution that fits any need, starting with a choice of library prep. Maintain a current prep for AVITI sequencing or leverage the Element Elevate Library Prep Workflow to stay with Element Biosciences end-to-end.

Elevate™ Workflow

Prepare Element libraries from DNA input.

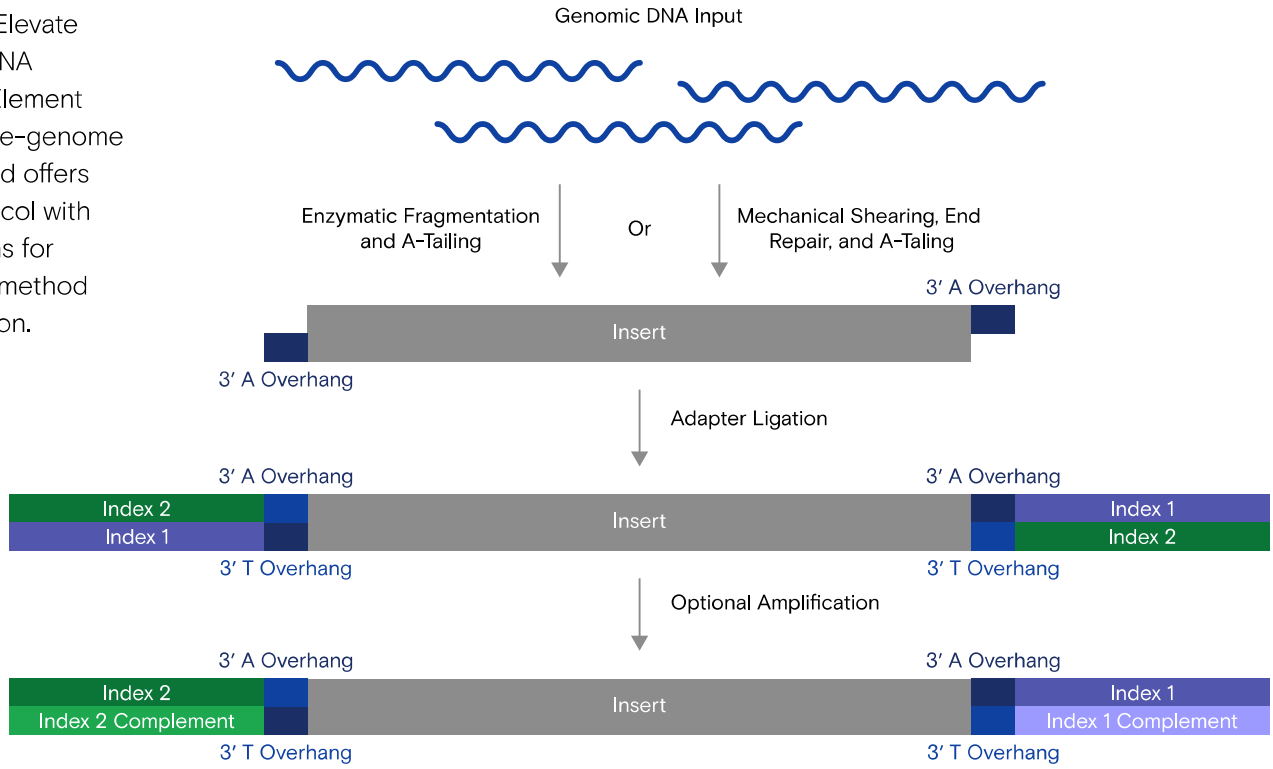
Adept™ Workflow

Adapt third-party libraries via circularization or amplification.

Third Party

Prepare third-party libraries from DNA or RNA input.

Figure 3. The Elevate Workflow for DNA generates an Element library for whole-genome sequencing and offers a flexible protocol with multiple options for fragmentation method and amplification.



Simple

Familiar library prep reagents and procedures deliver easy, efficient workflows.

Adaptable

Multiple library prep solutions equal multiple entry points to capitalize on AVITI benefits.

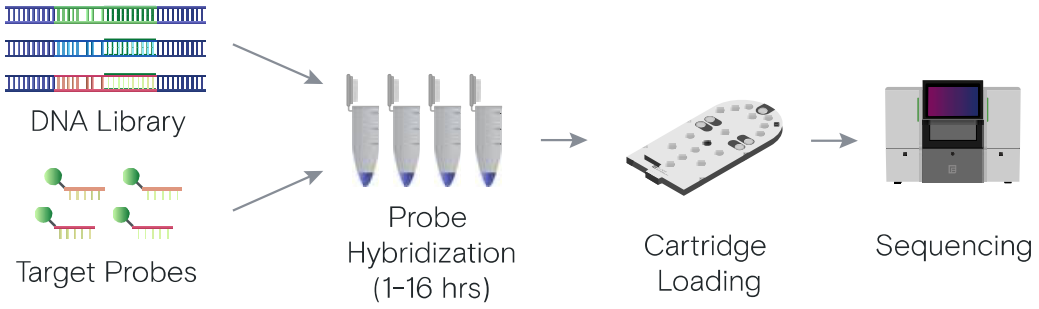
Compatible

ABC maximizes compatibility, streamlining AVITI sequencing for a diversity of library types.

Revolutionize your targeted sequencing workflows

Drastically simplifying target capture, our Trinity™ workflow saves up to 5 hours of hands-on time by eliminating some steps and automating others on board an AVITI sequencer, without compromising quality or cost.

Element Trinity Workflow



Tune your workflow

AVITI sequencing kits are packaged in configurations that tailor runs to your ideal read length and output. Generate only the number of reads you need at a price point that scales to match.

Each kit contains

- ✓ Flow cell
- ✓ Sequencing cartridge
- ✓ Buffer bottle
- ✓ Library loading buffer

Individually addressable lanes

Provides the option to sequence a different library pool in each of the two flow cell lanes.



Any application you need

Overarching compatibility with any NGS library meets a comprehensive menu of sequencing kits to unlock the full scope of sequencing applications. Whether you need 100 million reads or 2 billion, a short read length or long, AVITI is the solution.

Software that gets you to a result

Element software is simple, secure, and transparent. From onboard to in the cloud, Element lets users easily create end-to-end solutions through an open ecosystem, bringing flexibility and ease to NGS data management.



Figure 4. Interlocked components seamlessly move data from AVITI to FASTQ files for secondary analysis using software of your choice.

ElemBio™ Cloud

ElemBio Cloud is an online platform that centralizes data management. Innovative and user-friendly, ElemBio Cloud matches any lab to an analysis solution, scaling from plug-and-play simplicity to fully customized and self-managed.

Ground your analysis solution in a local network or pick from a range of cloud options.

ElemBio Go

Leverage an automated data storage and management solution for data flows in ElemBio Cloud through ElemBio Catalyst or a partner service.

ElemBio Custom

Select at least one cloud provider to develop a customized ecosystem for data analysis built on a cloud account that you manage.

ElemBio Local

Set up a custom local solution with offered utilities.

Element Biosciences

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We are global

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[1] Comparative data derived from analyses of HG001 (Element Freestyle and Illumina datasets) and HG002 (Element UltraQ) benchmarks. Actual results might differ based on lab-specific factors.

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