

The Element AVITI System and Cloudbreak

Highlights

- Twenty percent faster run times
- Exceptional accuracy with early insight into data quality
- Daily multiple run starts with the ability to tune output
- Onboard circularization
- Lowest cost per Read/Gb in a benchtop sequencer
- Seamless compatibility with leading assays
- 12-month shelf life of reagents



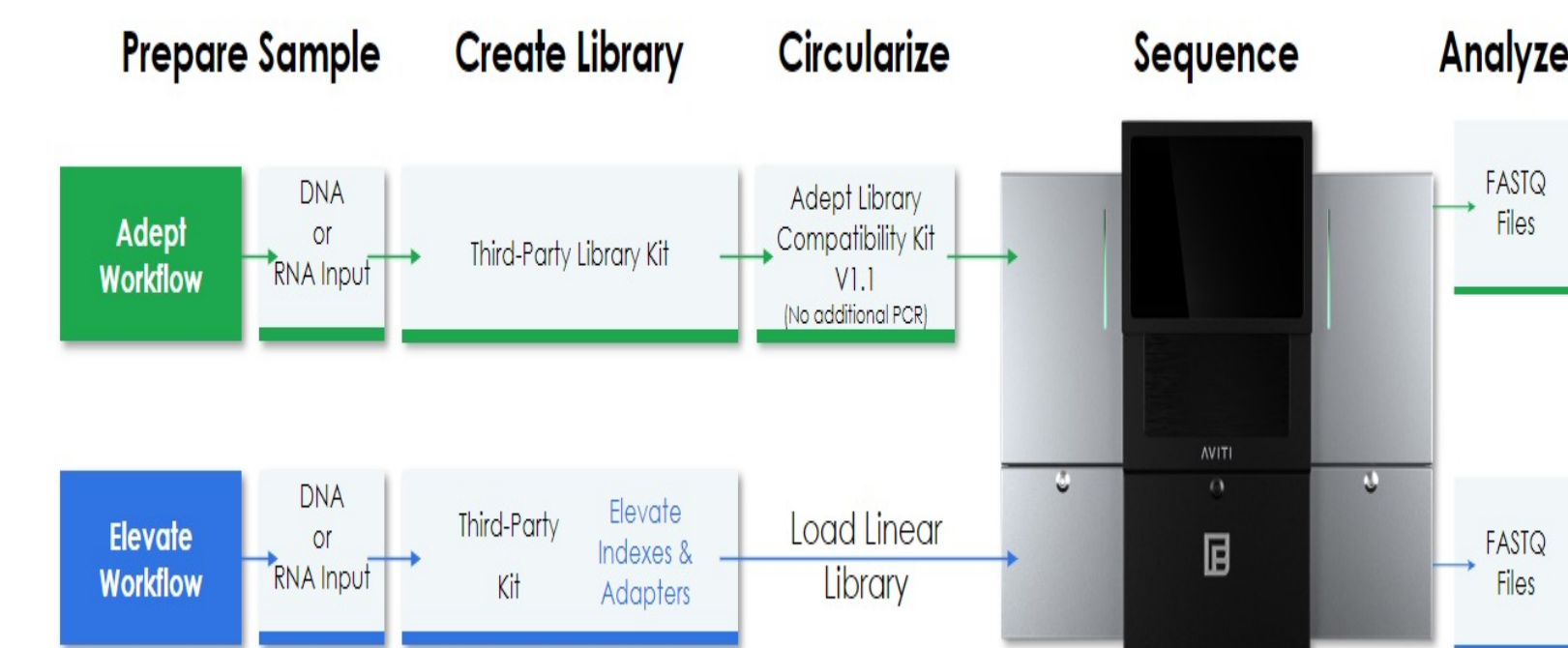
Innovations in next generation sequencing (NGS) have revolutionized the field of genomics, offering an unprecedented view of DNA to fuel scientific discovery. However, despite these advancements the cost of benchtop sequencing has remained high. Factory scale throughput is required to achieve any real savings, but this comes at its own cost in flexibility and quality. Many labs resort to outsourcing, conceding delayed results. What if you didn't have to compromise? The Element AVITI System and Cloudbreak chemistry pair to answer that question.

The AVITI System reimagines the core components of NGS to offer a comprehensive platform that provides broad access to the genomics ecosystem. By delivering mid-throughput sequencing at exceptionally low cost, the AVITI saves time and resources without the need to batch or accept lesser quality. Avidity™ sequencing forms the core of a disruptive design that readily adapts to a variety of applications. Element Biosciences now introduces Cloudbreak chemistry to advance the speed, ease of use, and flexibility of the platform.

Elevate library prep simplifies the workflow

Any library prepared with the Element Adept™ Library Compatibility Workflow or Element Elevate™ Library Prep Workflow is compatible with the AVITI System. Both workflows offer robust library prep with broad input requirements and serve as the main entry point for sequencing on the AVITI System.

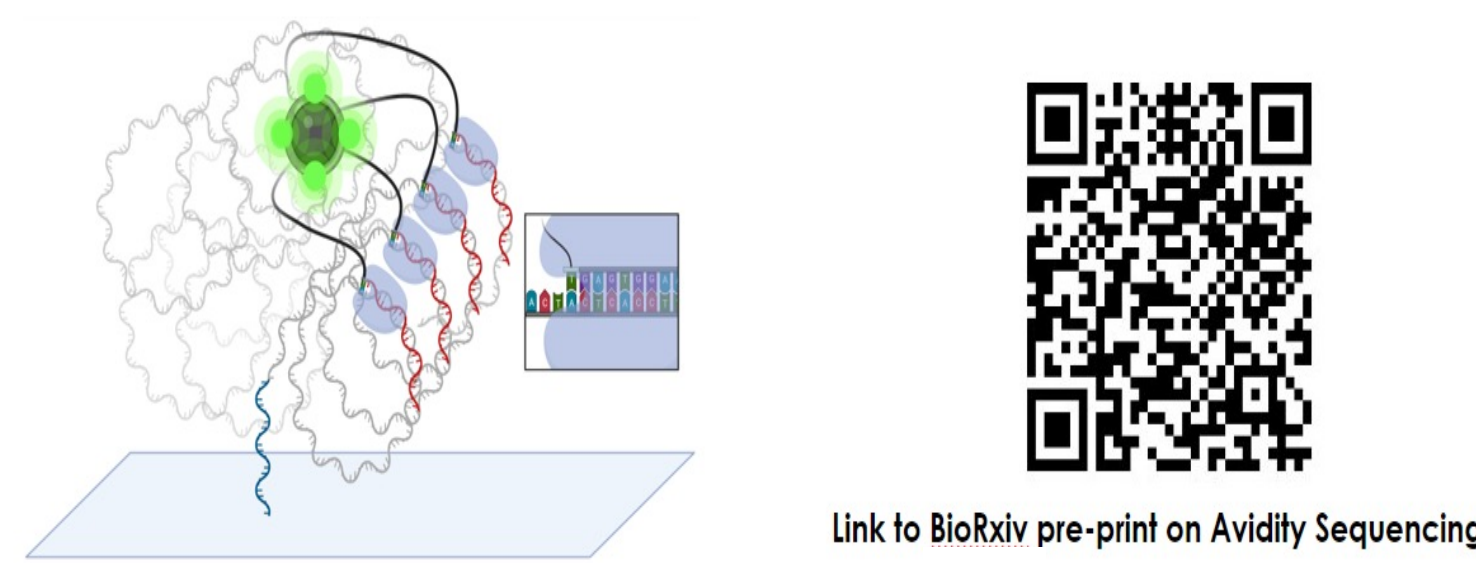
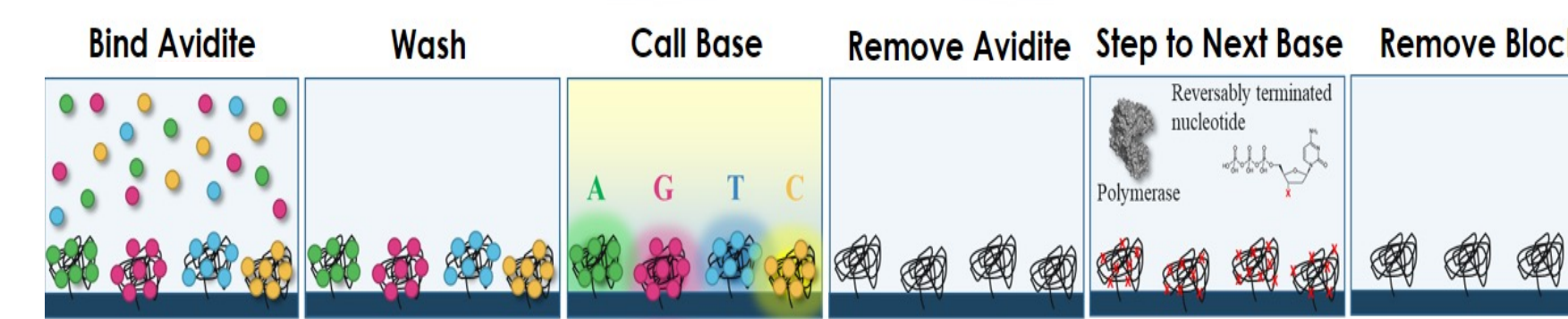
The Elevate Workflow prepares linear libraries from input DNA for whole-genome sequencing (WGS). This simple workflow integrates with Cloudbreak to automatically circularize libraries onboard the instrument as part of the run, minimizing hands-on time.



What is Avidity Chemistry

Avidity Sequencing leverages the unique properties of avidites to execute an efficient sequencing reaction that yields highly accurate data. A primary driver of this accuracy is a strong signal-to-noise ratio that persists even through high polony densities.

A cycle begins with a sequencing polymerase binding an avidite to a polony and primer duplex, trapping a base-specific avidite to the polony for imaging and forming an extremely tight complex that enables a 100-fold reduction in reagent concentration compared to sequencing-by-synthesis (SBS), by extension driving down the cost per sample.

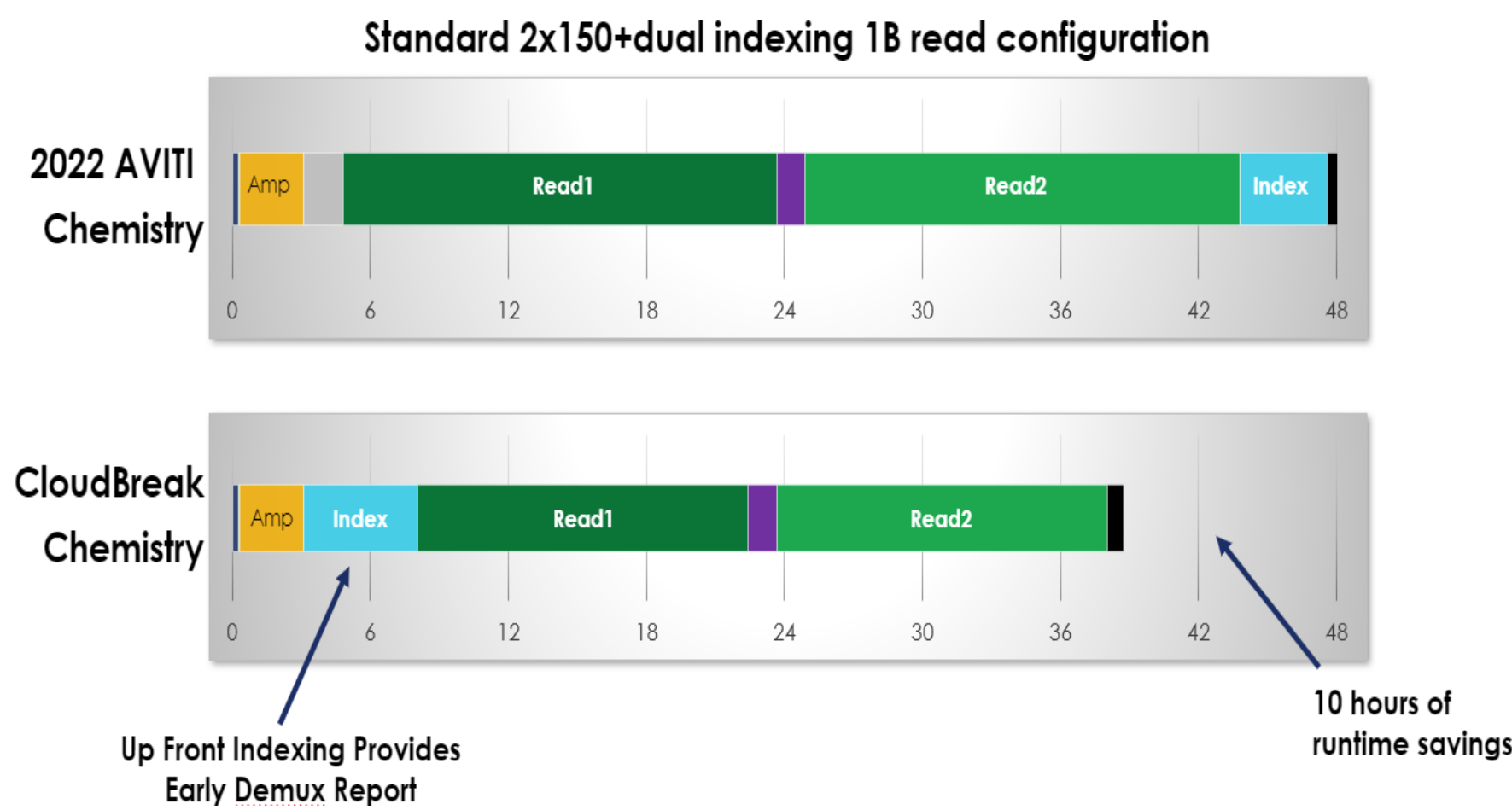


Link to BioRxiv pre-print on Avidity Sequencing

Improved run configurations and run times

Innovations introduced with the AVITI 2x75 Sequencing Kit Cloudbreak and AVITI 2x150 Sequencing Kit Cloudbreak reduce run times to ≤ 38 hours for the 300-cycle kit and ≤ 24 hours for the 150-cycle kit, including onboard circularization and amplification.

This accelerated turnaround maximizes the potential sequencing output during a regular workday, allowing daily completion of up to two 2 x 75 runs, insert sizes while accommodating unique dual indexing (UDI) and unique molecular identifiers (UMIs).

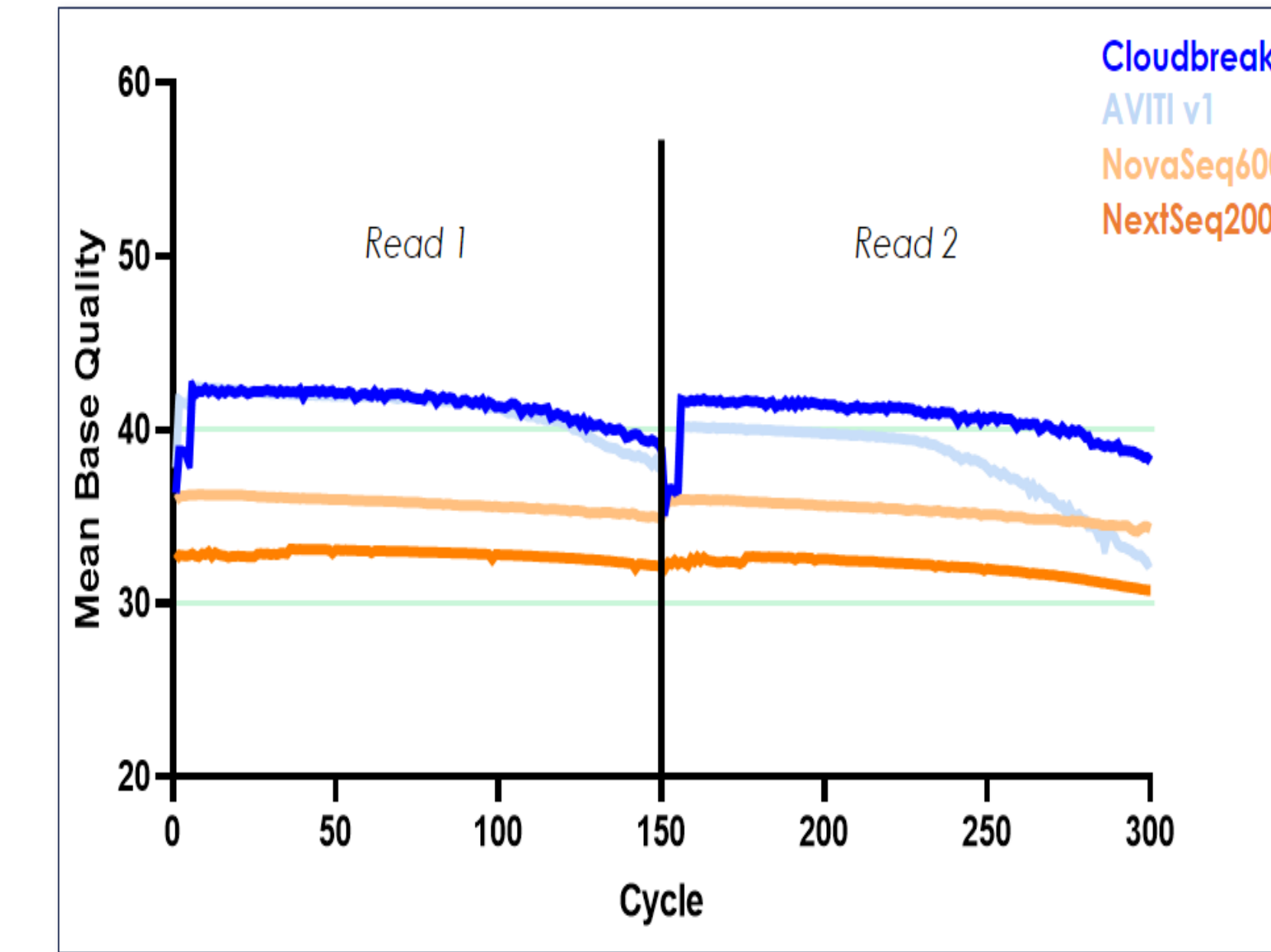


Up Front Indexing Provides Early Demux Report

10 hours of runtime savings!

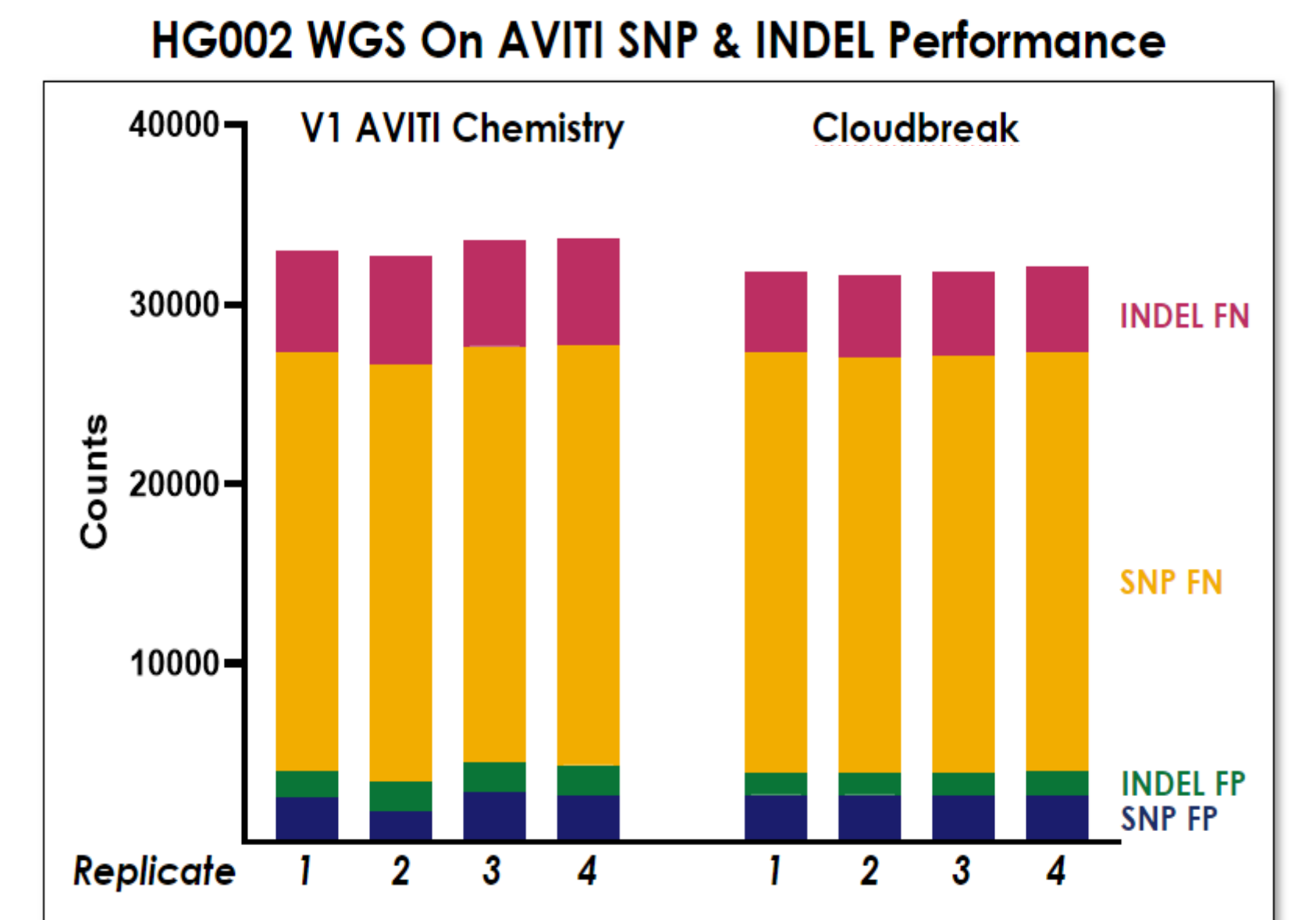
Cloudbreak data quality

The AVITI System resets expectations on quality scores (Q-scores), delivering the most accurate specification available today with greater than 90% of bases scoring Q30. Q-scores exceeding Q40 are routine.



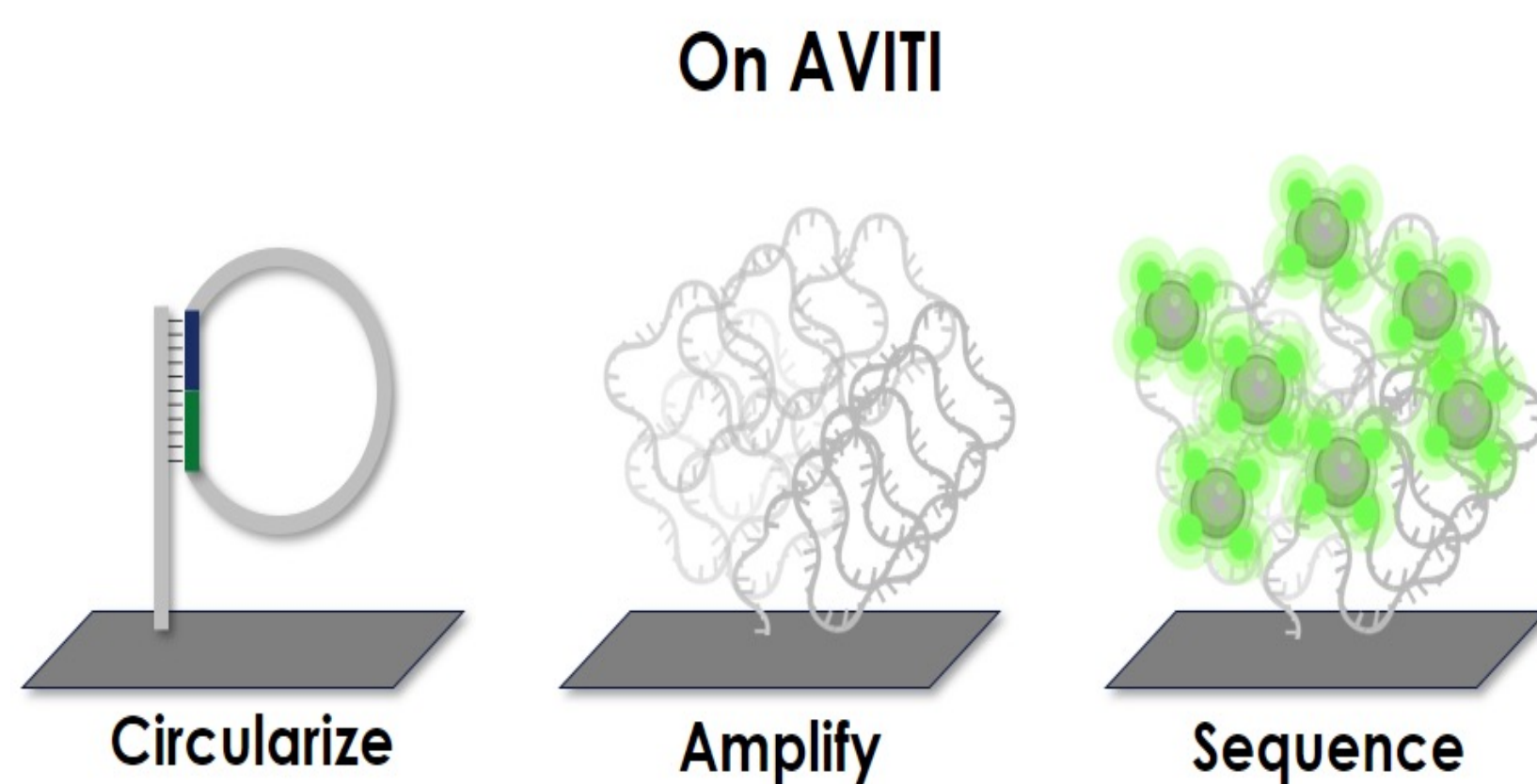
SNP and INDEL calling with Cloudbreak

The Genomics team at Google AI assessed data quality using widely sequenced National Institute of Standards and Technology (NIST) Reference Materials. The study found that at reduced coverage the AVITI System demonstrated higher variant calling accuracy compared to legacy sequencing technology.



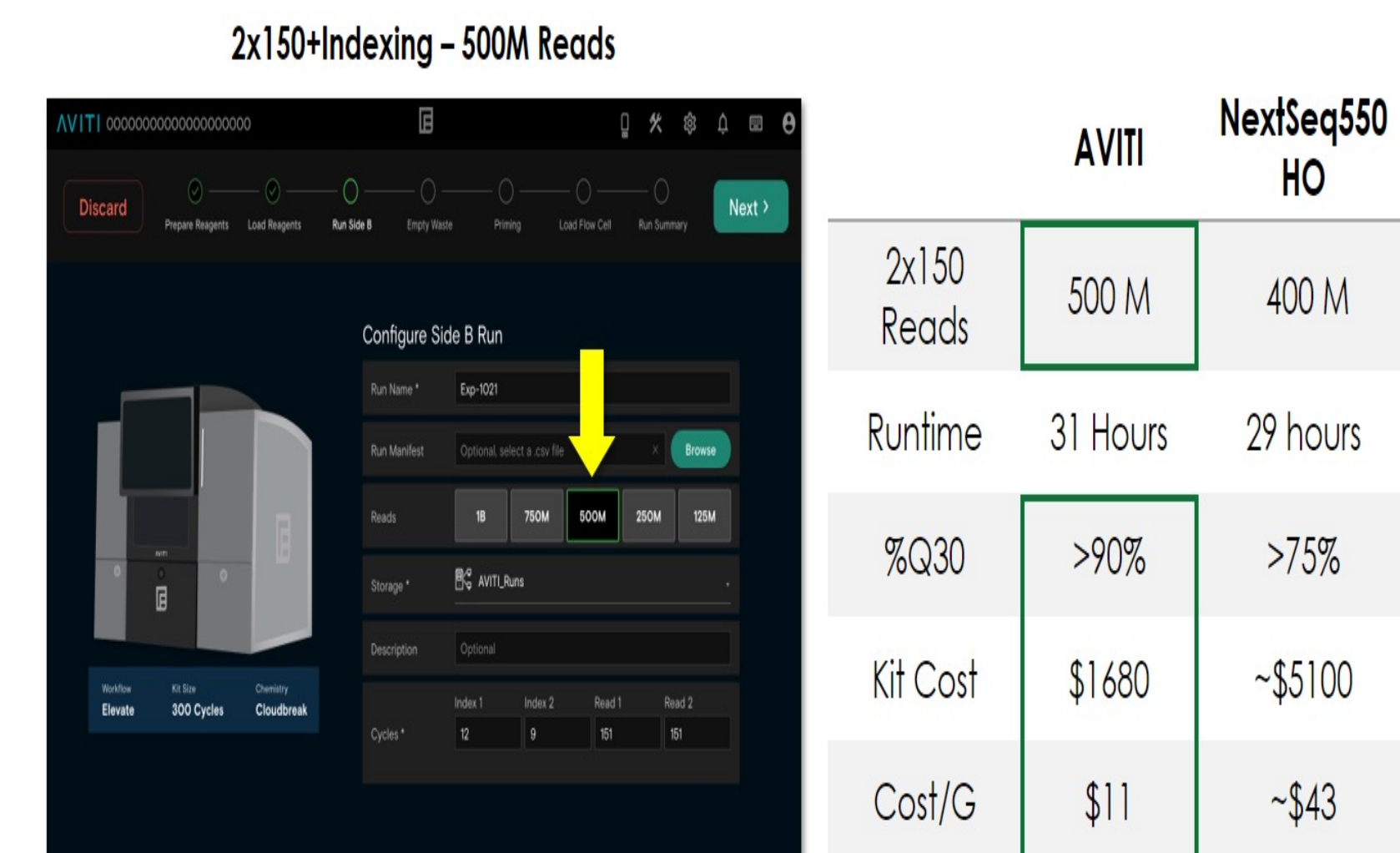
On-flow cell circularization with Elevate

On flow cell circularization is now possible using Cloudbreak with the Elevate workflow. Customers can now create both PCR-free and PCR-plus libraries using Element Adapters and Indexes by directly loading completed linear libraries onto the flow cell without the need to circularize them first in solution on the bench. This process is completed on-flow cell and adds no additional sequencing time.



Flexible run starts and tunable output

A unique tunable throughput feature controls run output through an onscreen button without the need to maintain a complicated inventory of reagents and flow cells. Combining the dual flow cell and tunable throughput features to execute two 2 x 150 runs delivers 300 Gb of data in only 31 hours. In the scenario pictured below, AVITI is set to 500M reads for a reduced run time on a single flow cell at 2x150 and still maintains enormous cost savings advantages per run and per Gb.



\$200 Genome available today

The first NGS company to make the \$200 genome available. Based on a subscription model the threshold to savings starts early.

Announcing
\$200 genome
\$13 exome
\$2/G
\$.60/MR

Any Sequencing Application Qualifies
 No Location Constraints

Threshold
300 genomes/quarter
\$1,380 effective price
\$460 genome
2 AVITI
Max
690+ genomes/quarter
\$600 effective price
\$200 genome
3-5 AVITI

Summary

Rapid chemistry and workflow innovation within a year at the same fixed pricing for the lifetime of your AVITI instrument.

- 38 Hour 2x150**
Save 10 hours compared to v1 chemistry
- On-Board Circularization**
Eliminate additional library prep time with Elevate
- Early Indexing**
Index and demux report early in the run
- 90% Q30**
Highest quality desktop sequencer
- Flexibility & Convenience**
Run configurations to meet your time and output needs
- 12mo Shelf-life**
2x improvement eases inventory management