
TWIST BIOSCIENCE
DREAM IT,
SEQUENCE IT.
Unveiling Next-Gen Solutions for
Precision Diagnostics and Beyond
FEBRUARY 2024

LEGAL DISCLAIMERS

This presentation contains forward-looking statements. All statements other than statements of historical facts contained herein are forward-looking statements reflecting the current beliefs and expectations of management made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, including, but not limited to, statements regarding Twist Bioscience's path to profitability, future growth, expansion, market share gains and Twist Bioscience's other expectations regarding its future operations plans, introduction of new products, and newly announced partnerships. Forward-looking statements involve known and unknown risks, uncertainties, and other important factors that may cause Twist Bioscience's actual results, performance, or achievements to be materially different from any future results, performance, or achievements expressed or implied by the forward-looking statements. Such risks and uncertainties include, among others, the ability to attract new customers and retain and grow sales from existing customers; the ability of Twist Bioscience to achieve sufficient revenue to achieve or maintain positive cash flow from operations or profitability in any given period; risks and uncertainties of rapidly changing technologies and extensive competition in synthetic biology that could make the products Twist Bioscience is developing obsolete or non-competitive; uncertainties of the retention of significant customers; the ability of Twist Bioscience to successfully integrate acquired companies and to achieve expected benefits from acquisitions; supply chain and other disruptions; risks of third party claims alleging infringement of patents and proprietary rights or seeking to invalidate Twist Bioscience's patents or proprietary rights; and the risk that Twist Bioscience's proprietary rights may be insufficient to protect its technologies. For a description of the risks and uncertainties that could cause actual results to differ from those expressed in these forward-looking statements, as well as risks relating to Twist Bioscience's business in general, see Twist Bioscience's risk factors set forth in Twist Bioscience's Quarterly Report on Form 10-Q filed with the SEC on February 2, 2024 and subsequent filings with the SEC. Any forward-looking statements contained in this presentation speak only as of the date hereof, and Twist Bioscience specifically disclaims any obligation to update any forward-looking statement, whether as a result of new information, future events or otherwise.

This presentation also contains estimates and other statistical data made by independent parties and by us from third party sources relating to market size and growth and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. Neither we nor any other person makes any representation as to the accuracy or completeness of such data or undertakes any obligation to update such data after the date of this presentation. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

Scalable, Profitable Growth

PROTEINS

DNA

RNA

One chip

Unprecedented scale,
many opportunities for
cost efficient expansion

TWIST BIOSCIENCE

DNA on Silicon Platform

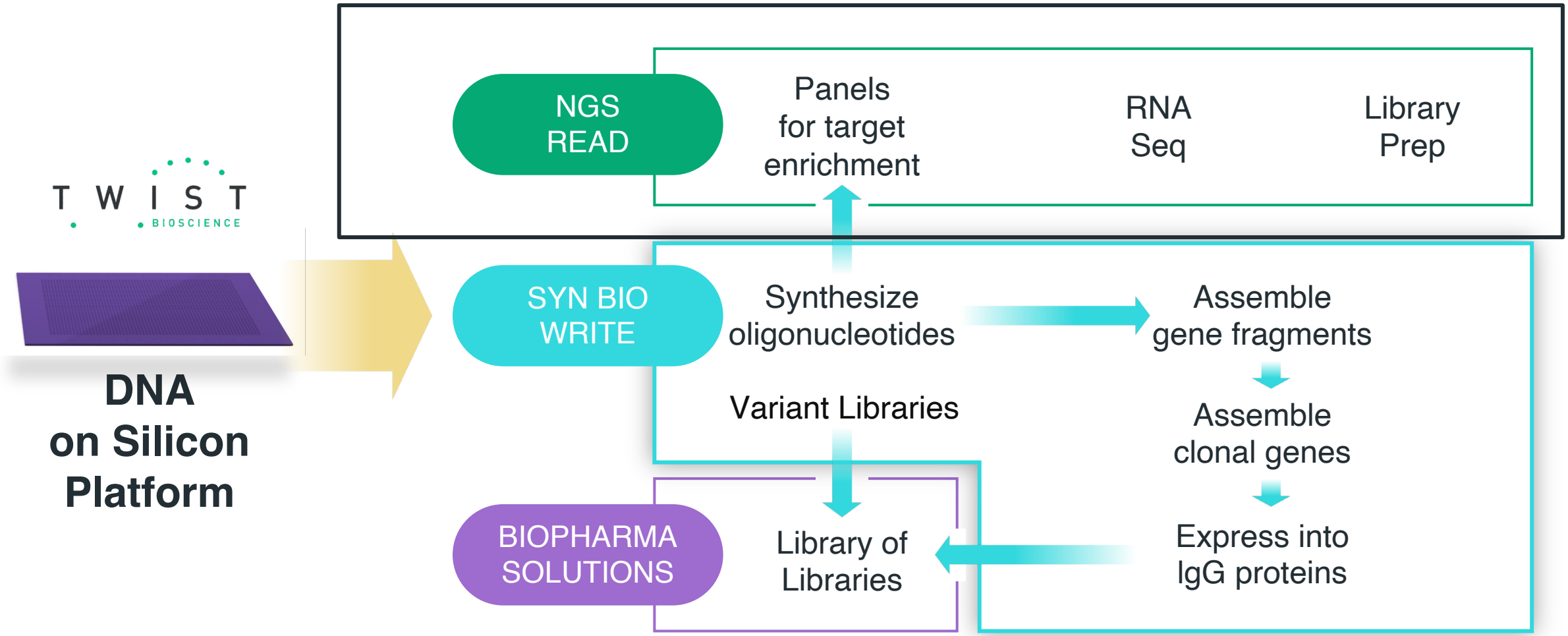
MORE Products

MORE Applications

MORE Customers

MORE Markets

Interconnected Product Groups Leverage the Same Chip



A Differentiated and Innovative Business

Compelling BUSINESS MODEL

- **Low variable costs** enable rapid margins ramp
- **High fixed costs** deter new entrants into market

Exceptional USER EXPERIENCE

- Integrated **eCommerce** platform
- **Fast and easy** ordering, high NPS

Scalable INFRASTRUCTURE

- Delivering **>280,000 genes** per month + **RNA, Protein**
- Expanding through **additional products**

Powerful PRODUCTION

- **16 million+** oligo/day capacity
- Up to **10,000x** greater scale and throughput than 96 well plate-based approach

Proven Silicon PLATFORM

- **10+ years** of development, increasingly complementary product lines
- Proprietary **DNA writer, software**

From Differentiation to Market Leader

2018
Launched best-in-class target enrichment panel offering – **Human Core Exome**

2019
Expanded offering with robust **Library Prep kits and reagents**

2020
Responded to Global Pandemic – **SARS-CoV-2 Panels Synthetic Controls**

2021
Continued innovation in Exome, Custom offering, Library Prep and **Targeted Methylation**

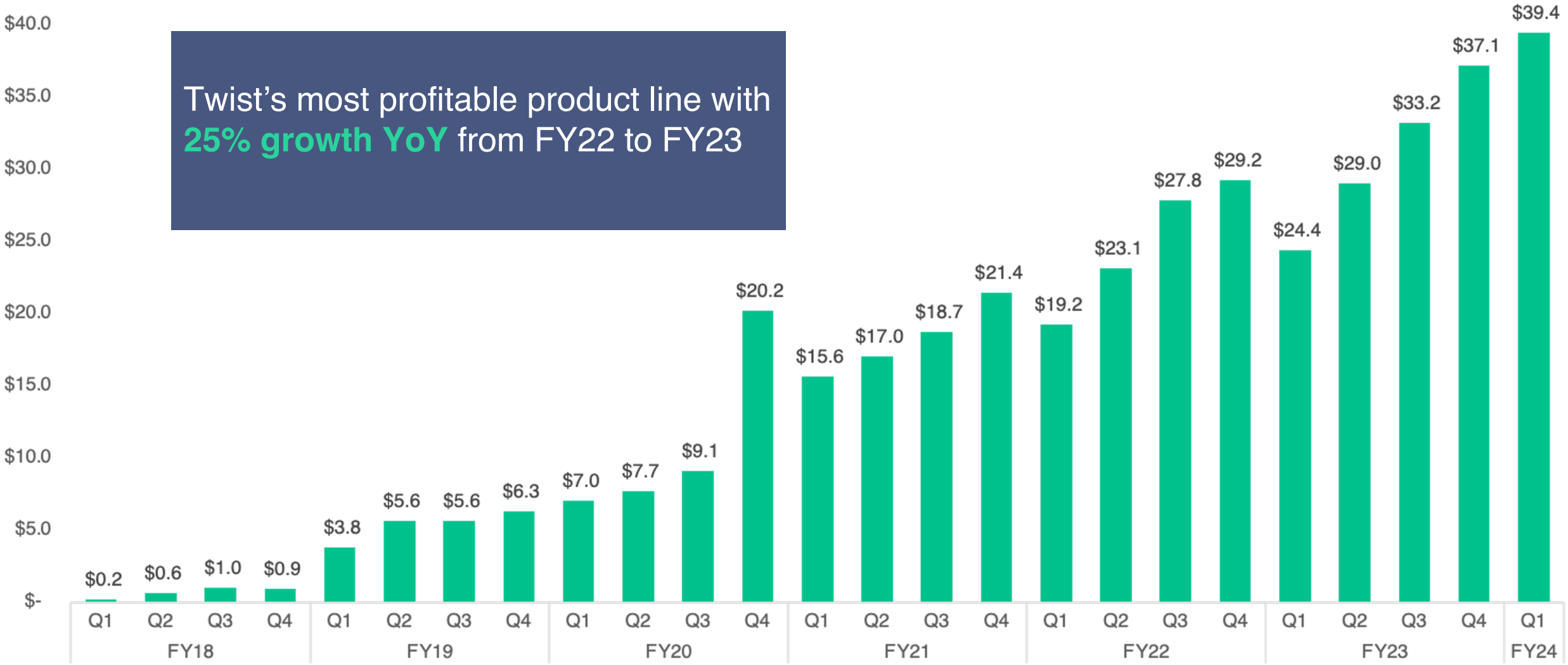
2022
Expanded exome panel offerings with **MRD500, Exome 2.0** and **methylation workflow**

2023
Grew into new and high throughput applications with **RNA-seq** and **HT Universal Adapter System**

2024
Continued innovation across research and applied fields to clinical, offering best in class quality, performance and workflow

NGS Portfolio: A Five Year Record of Commercial Excellence

Twist's most profitable product line with **25% growth YoY** from FY22 to FY23



Driving Innovation to Meet Our Customer's Needs

Sample volumes are rapidly growing **as sequencing costs** decrease.

Efficient and cost-effective NGS solutions are more important than ever.

- Many sample types
- Many sequencer platforms
- Many scientific questions

Science is pushing the boundaries of what we can do for public health, the environment, and human disease.

Twist is focused on providing the best toolset to drive scientific advancement for the benefit of all.

Why We Win in NGS

Quality

Uniformity

Lower sequencing cost

Rapid customization

Fast throughput

Sequencer agnostic

Next Up

RNA sequencing workflow

Liquid biopsy growth (ongoing)

MRD growth (ongoing)

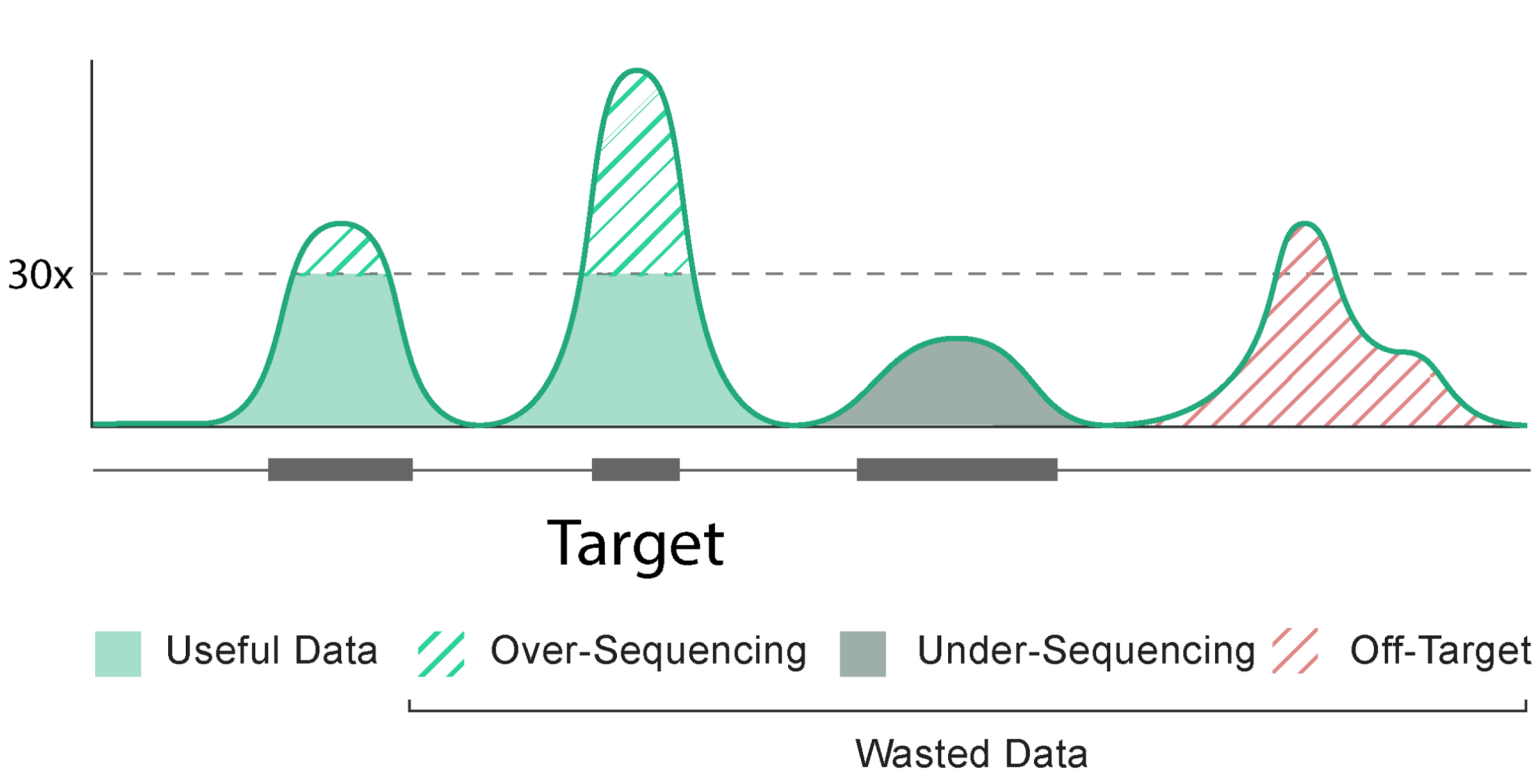
➔ Regulated products

➔ Advanced library prep

➔ SNP microarray conversion

Uniform Capture = Savings on Sequencing

Get the most information with the least amount of sequencing

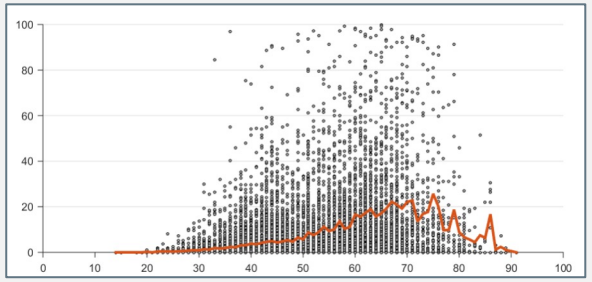


Hasin et al. The Importance of Coverage Uniformity Over On-Target Rate for Efficient Targeted NGS, Twist Bioscience White Paper, 2018.

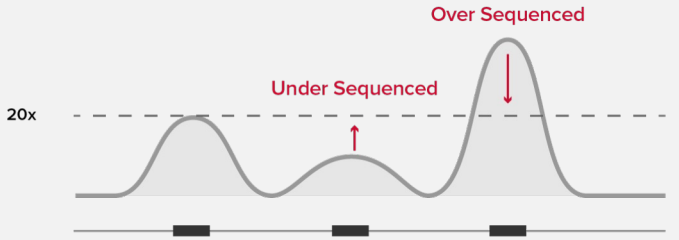
Uniform Capture = Savings on Sequencing

Standard Amplification Methods

Oligo Frequency (based on read count)

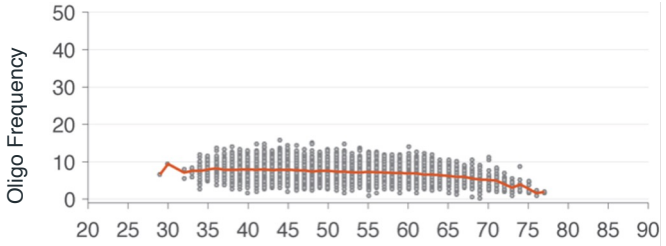


GC%



Biased Probe Representation

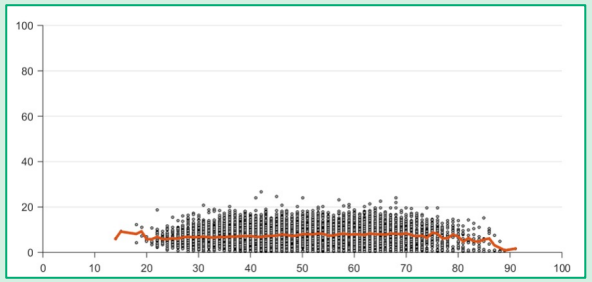
Uniform Synthesis



GC %

Twist Amplification Method

Oligo Frequency (based on read count)



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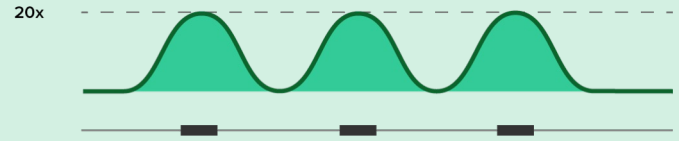
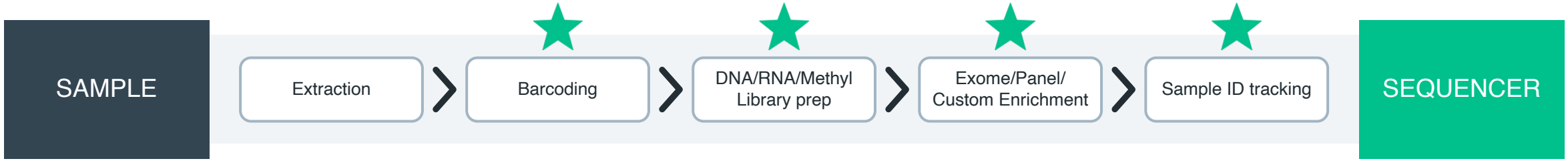


Highly Uniform Probe Pool

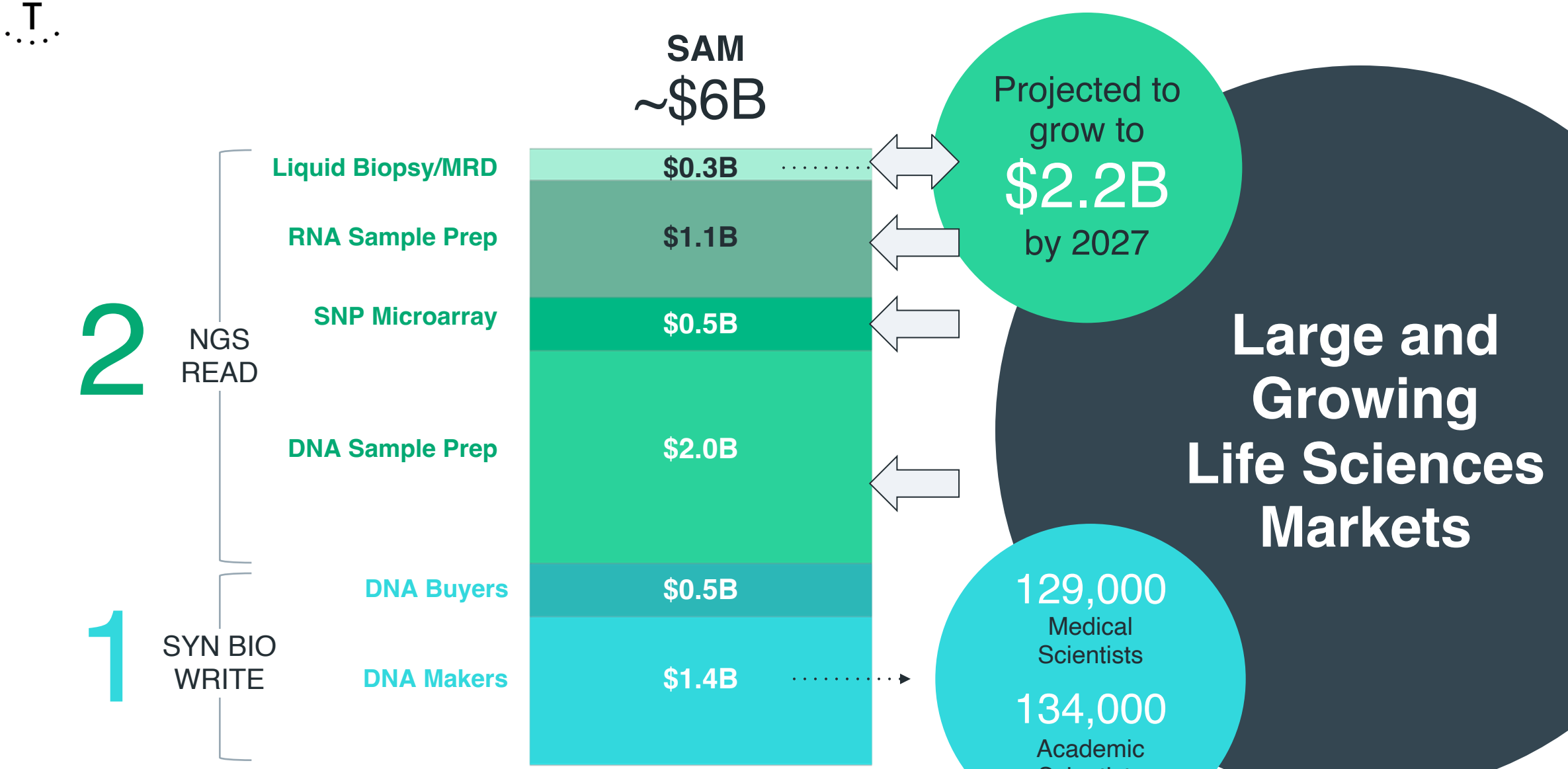
We Sell Products Across Multiple Spectrums, Expanding Applications

Twist Products

SEQUENCING WORKFLOW



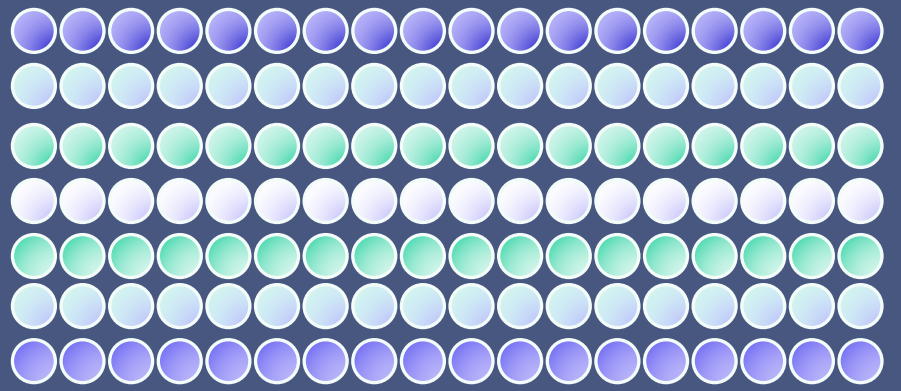
PROGRESSION OF DISEASE: CANCER



Sources: DeciBio, BCC, Markets & Markets, Bureau of Labor Statistics 2022 (https://www.bls.gov/emp/tables/emp-by-detailed-occupation.htm)

Reimagining custom for the clinic

Quality



Cost

Performance

For in vitro diagnostic use. Not available in all regions and countries.

Taking NGS Uniformity to the Next Level: Regulated Products

Robust.
Regulated.
Premium Offering.

Introducing Twist Precision Dx.

For in vitro diagnostic use. Not available in all regions and countries.

Twist's IVDR Initiative – Twist Precision Dx Products

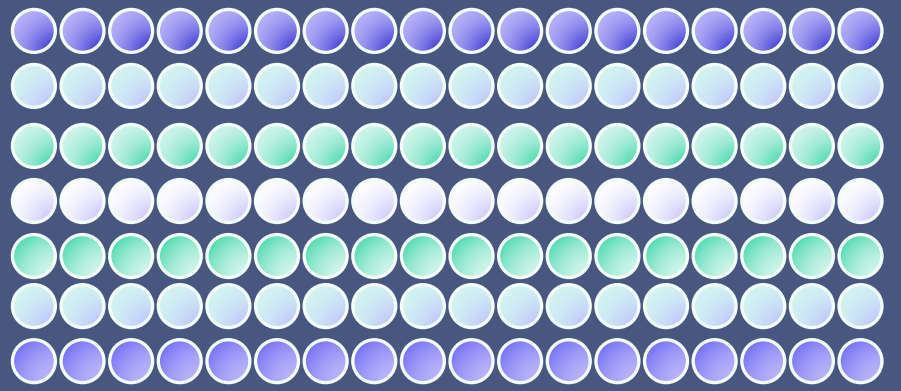
Our CE-marked Twist Precision Dx Products are available in three configurations:

PRODUCTS	CONTENT
Twist Precision Prep and Enrichment Dx Kit	· **Panel-agnostic** library prep and enrichment
Twist Precision Exome Dx Panel	· **Exome panel** that can be integrated with other workflows
Twist Precision Exome Dx Kit	· **Comprehensive exome workflow** with library prep, target enrichment, and exome panel

For in vitro diagnostic use. Not available in all regions and countries.

Powering discovery in oncology

Quality



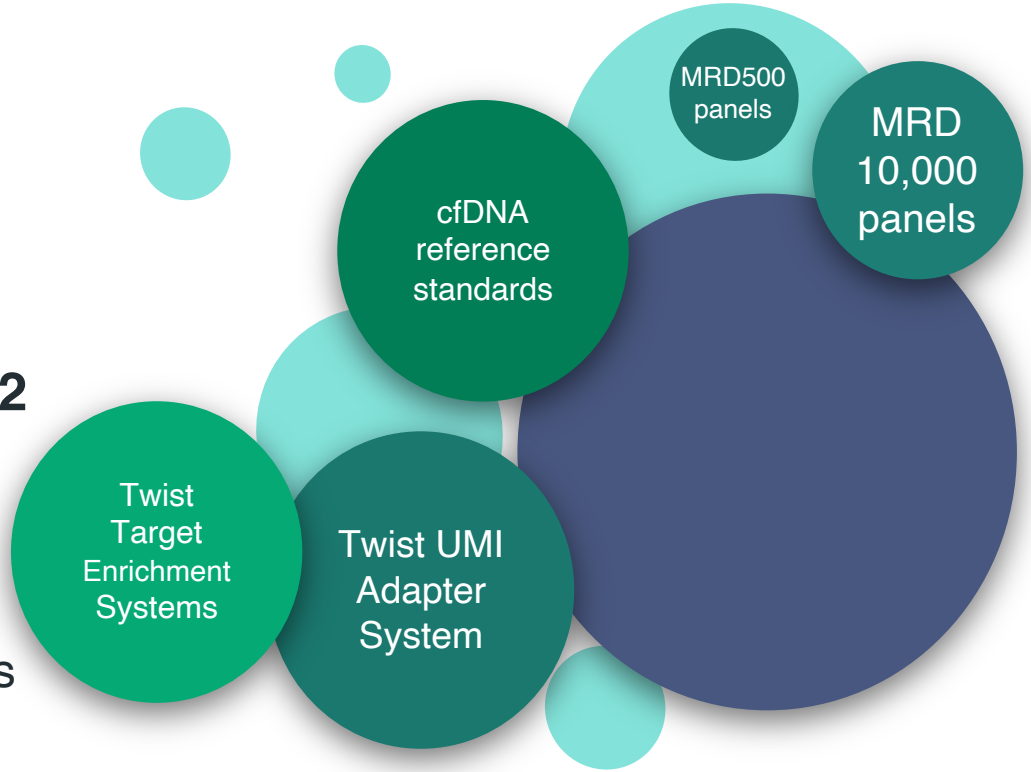
Cost

Performance

Bolstering End-to-End Liquid Biopsy Ecosystem

cfDNA Reference Standards v2

- **456** naturally occurring cancer variants including SVs
- **160** unique synthetic molecules per variant
- Down to **0.1%** allele frequency
- **Ultra low background** mutation rate



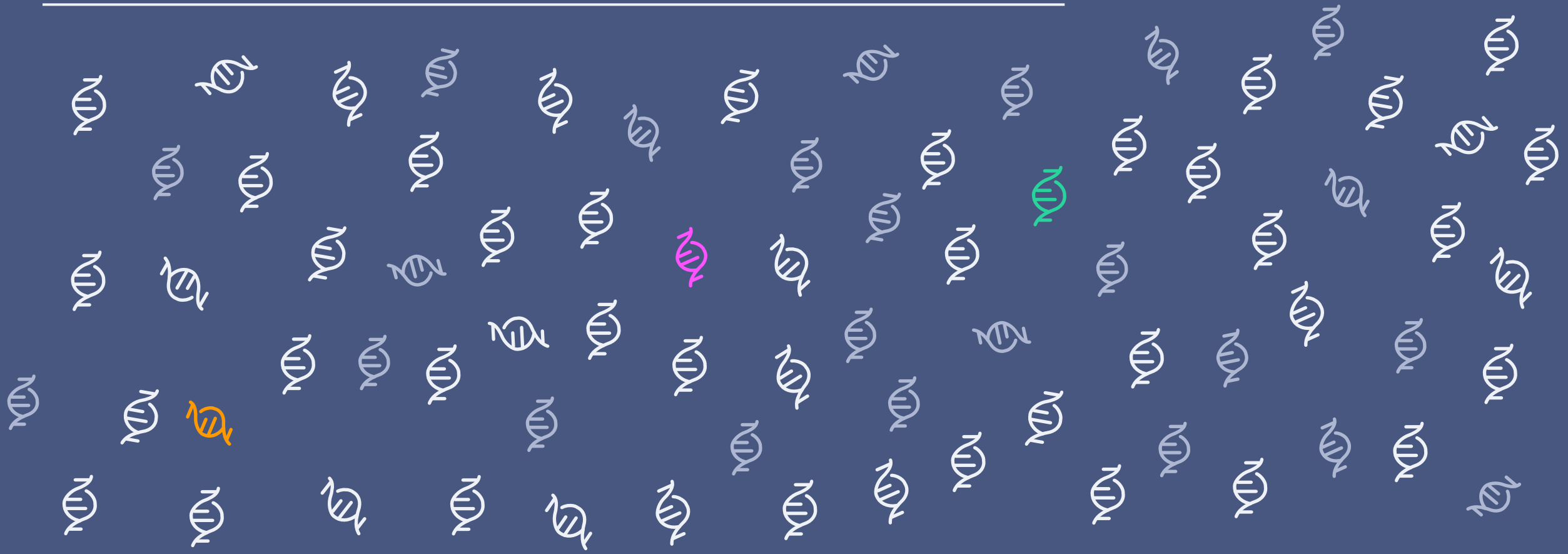
Twist MRD panels

- Innovative production process enables **affordable, rapid, and personalized** enrichment panels
- New class of larger MRD panels up to **10,000** unique variants

Where does sensitivity of a liquid biopsy research assay start?

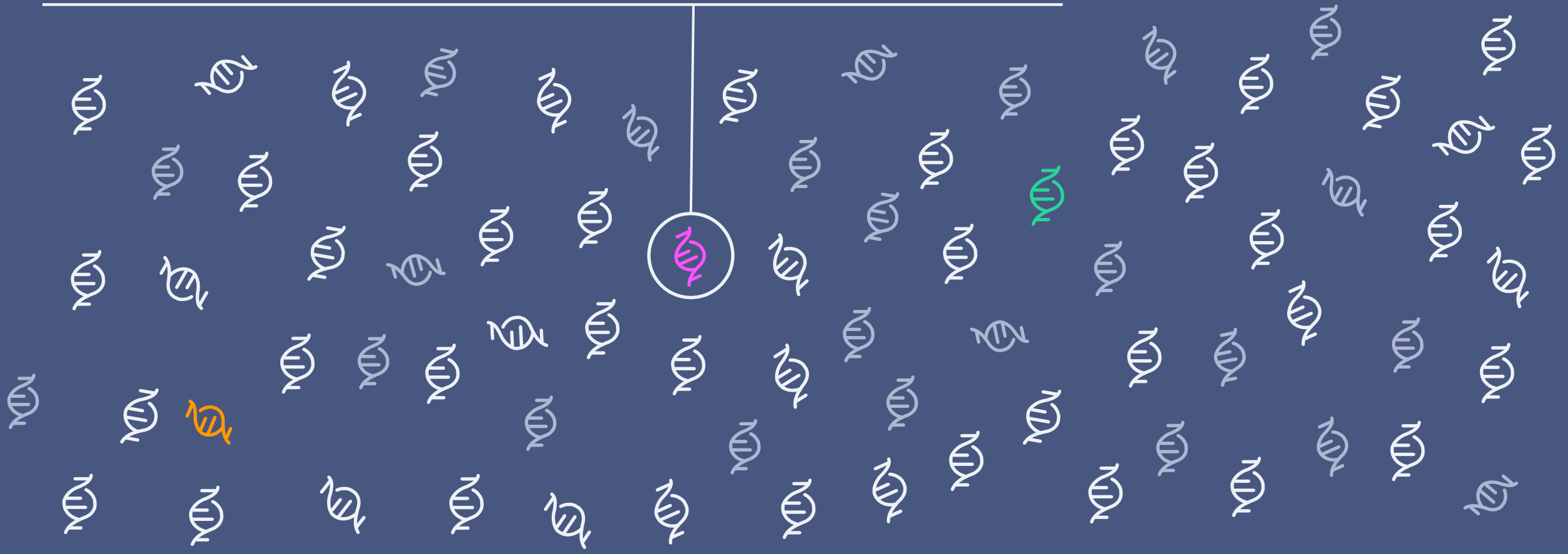
Where does sensitivity of a liquid biopsy research assay start?

Before library preparation



Where does sensitivity of a liquid biopsy research assay start?

After library preparation



Sensitivity starts with library preparation

Retain more molecules.
Improve detection of rare variants

Higher yield in library preparation means improved assay sensitivity

You miss molecules

You miss variants

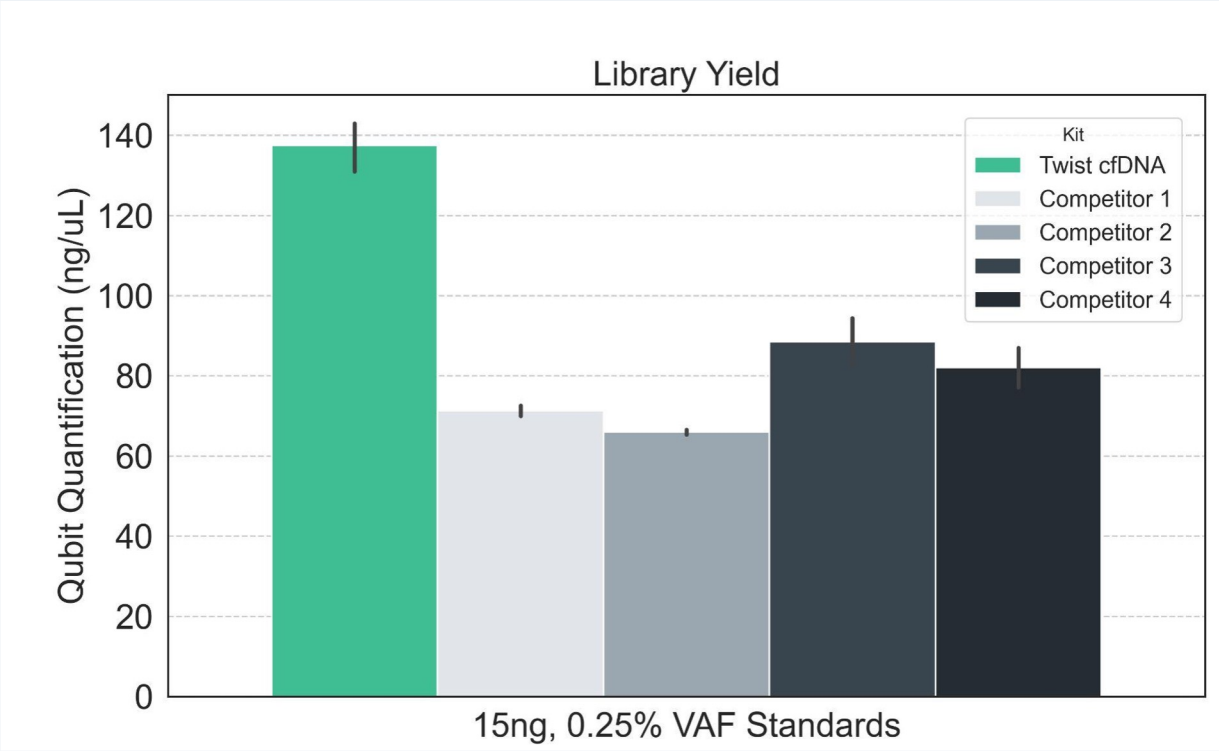
YOU MISS RESULTS

ANNOUNCING:

Twist cfDNA Library Prep

Solidifying our position within Liquid Biopsy, MRD assays

Liquid Biopsy Library Prep: Highest Yield for Comprehensive Profiling

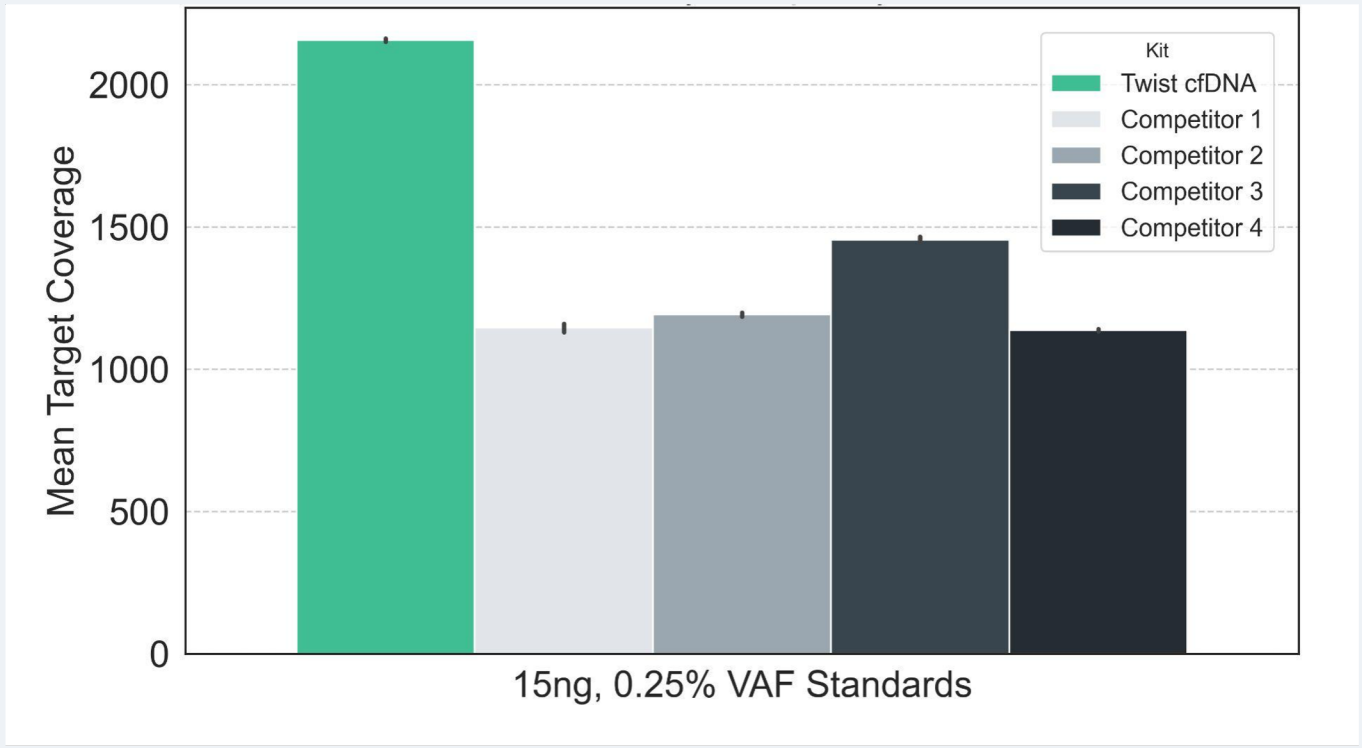


More efficient conversion of starting molecules into sequenceable libraries leads to better data

Up to **double library prep yield**, relative to similar on-market low input kits

Bringing **Twist's scientific innovation** to each element, from enzymes and buffers to workflow

Carry Library Prep Yield Gain Through Target Enrichment



Capture performed with 47kb pan-cancer panel

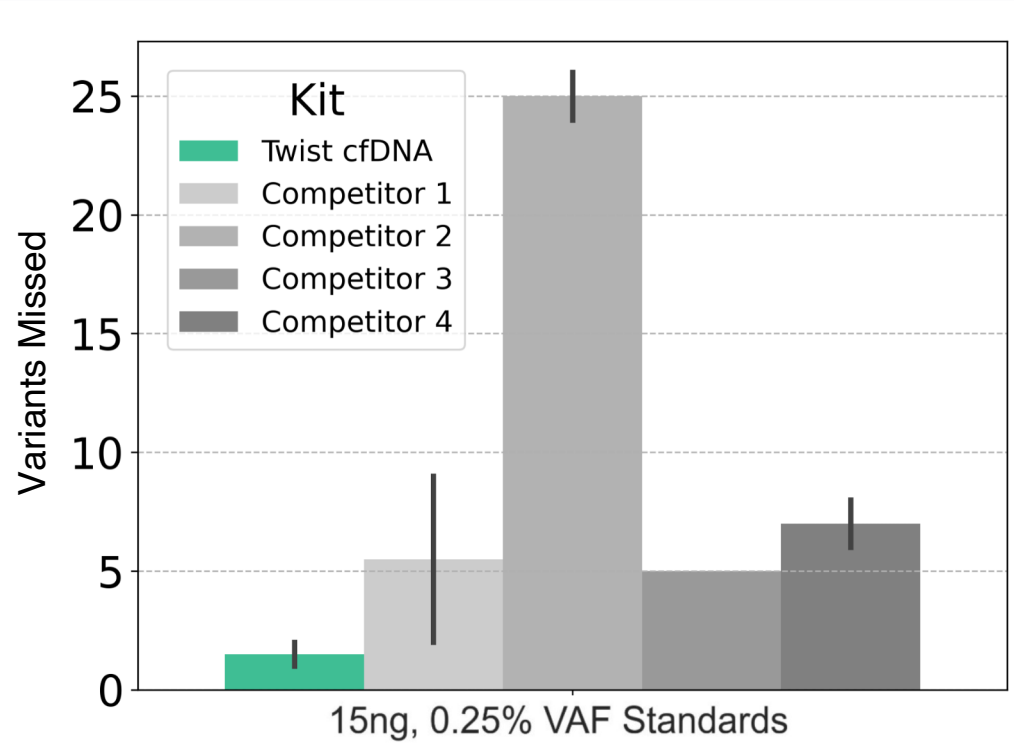
Improved conversion rate leads to **higher mean target coverage**

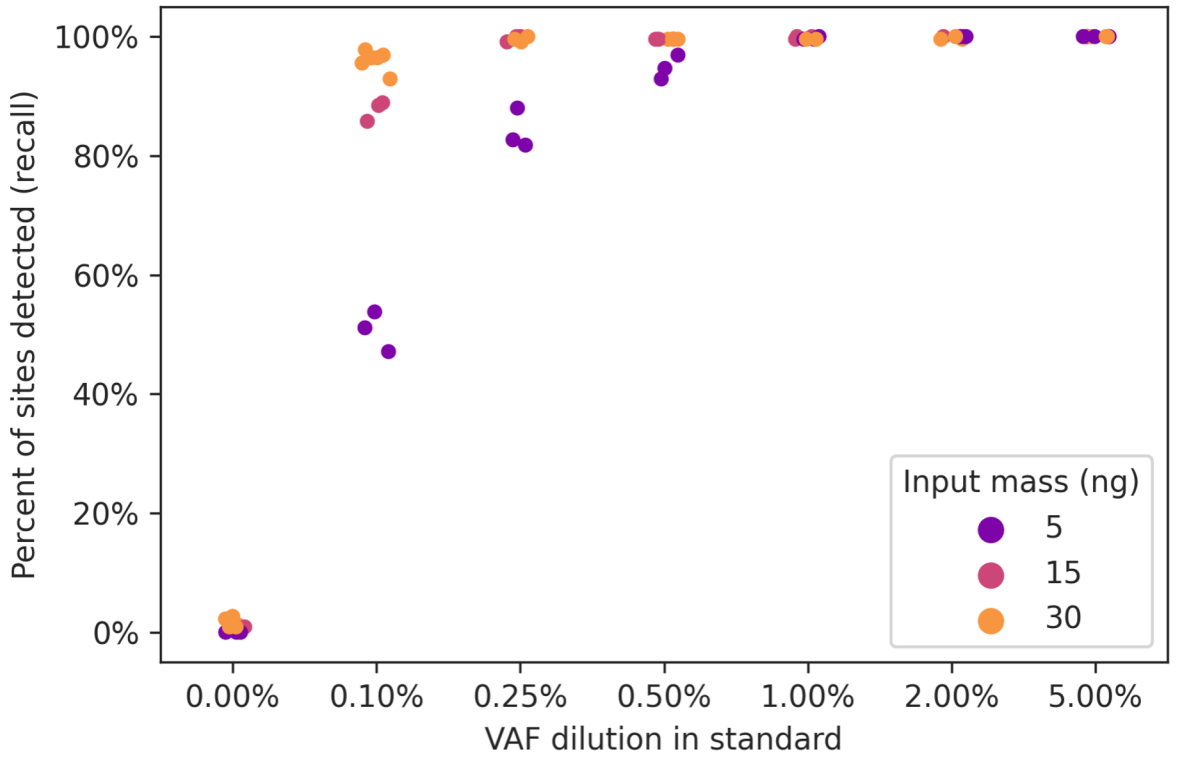
Higher complexity enables **improved sensitivity**

Increased coverage means **greater confidence in variant calling**

Re-optimizing Twist's tried and true capture systems to **ensure the gains in library prep are maintained after enrichment**

Resulting in Maximum Sensitivity and Insight into Variants



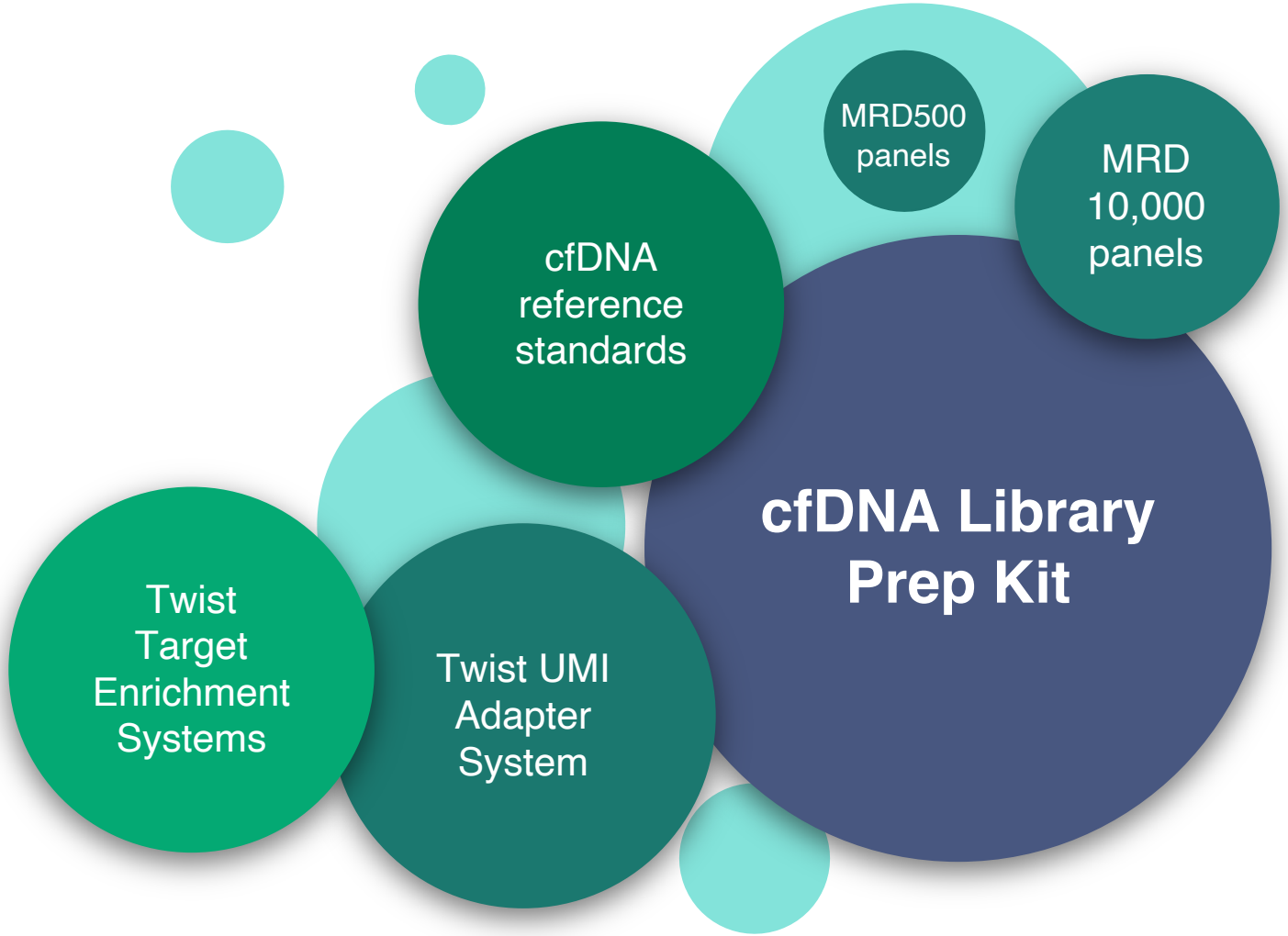


Capture performed with 47kb pan-cancer panel using Twist cfDNA reference standards and Twist UMI Adapter System

Higher Sensitivity
Twist's higher coverage leads to lower variants missed

Higher Detection
Even low VAF and variable input mass

Optimized End-to-End Liquid Biopsy Ecosystem



Clinical Research Continues: From DNA to RNA, Tapping Research Market

Twist RNA-Seq: Full Suite of Workflow Solutions

Whole Transcriptome Workflows

RNA Library Prep with FFPE Repair

Target Enrichment Workflows

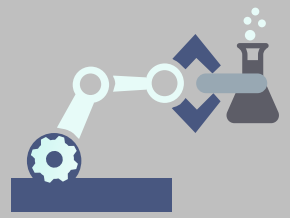
rRNA & Globin Tx Depletion

CeGaT Alliance Fusion Panel

Twist RNA Exome Panel

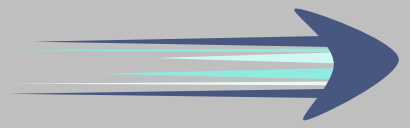
Custom RNA Panels

FEATURES MADE FOR THROUGHPUT:



Automation friendly

Accepts degraded samples

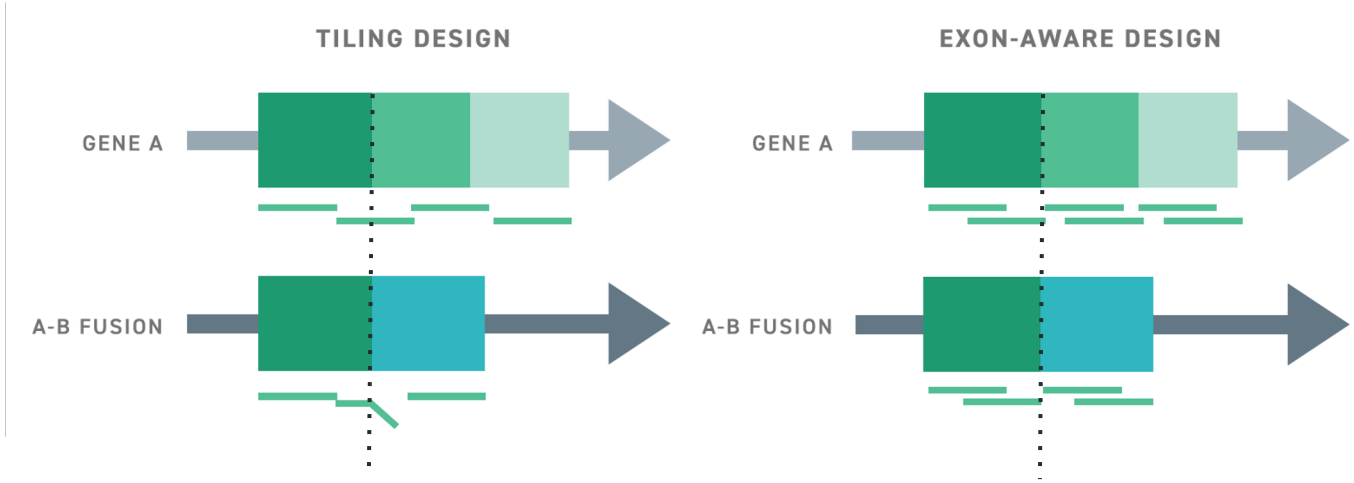


Fast Protocols

Innovating Target Enrichment Strategies for Greater Sequencing Efficiency

Twist RNA Exome Panel with “Exon-Aware” Design

Other Exomes tiled to DNA

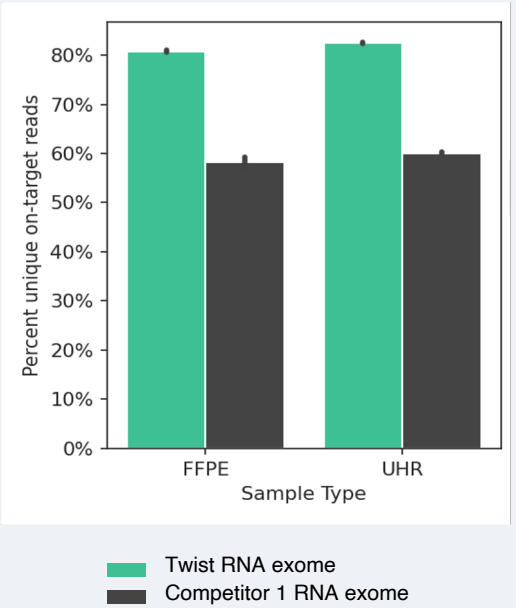


Exon-spanning probes capture off-target sequences

Twist RNA Exome with Exon-Aware Design

Unique designs position probes informed by RNA sequences vs. DNA

More unique reads… less waste



Over **20% more** on-target reads to reduce wasted reads

We are platform agnostic. We serve the community.

PacBio

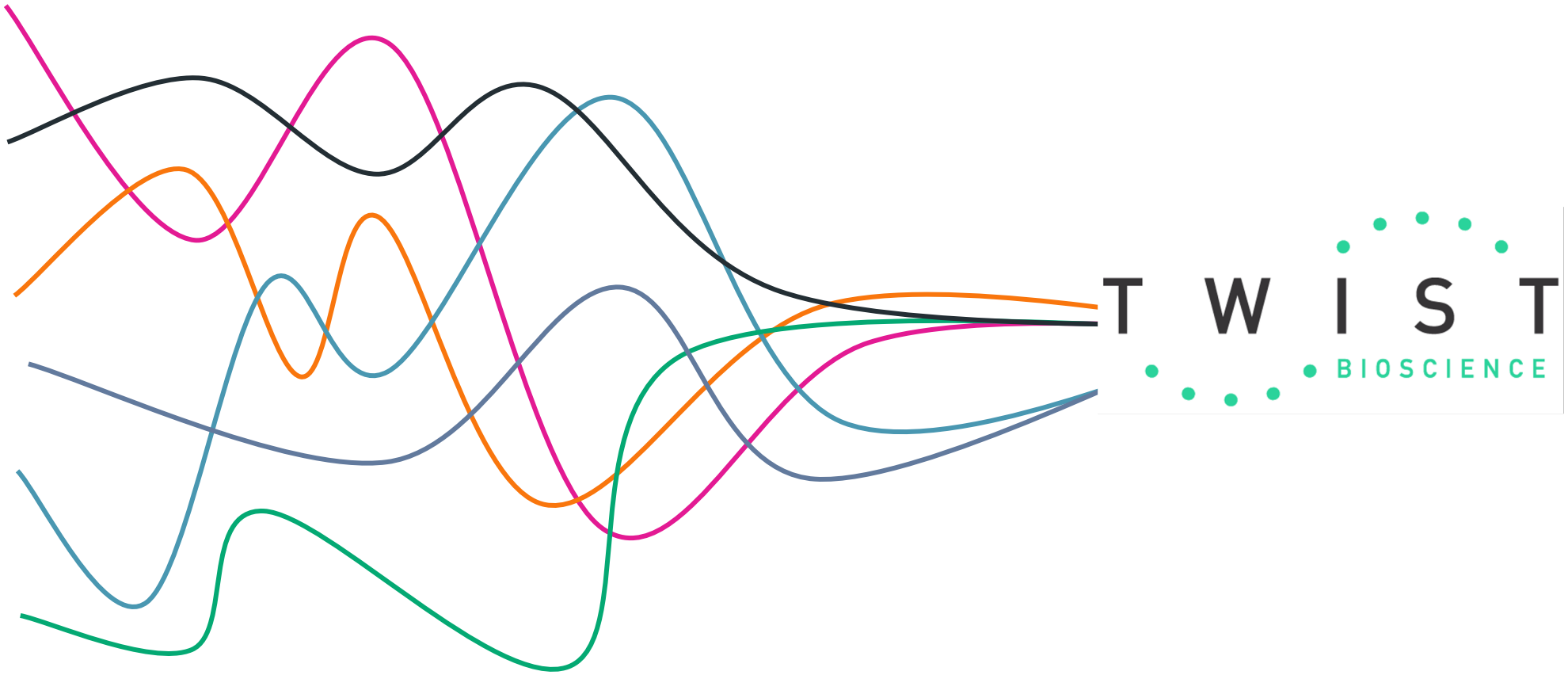
Element Biosciences

illumina

Complete GENOMICS

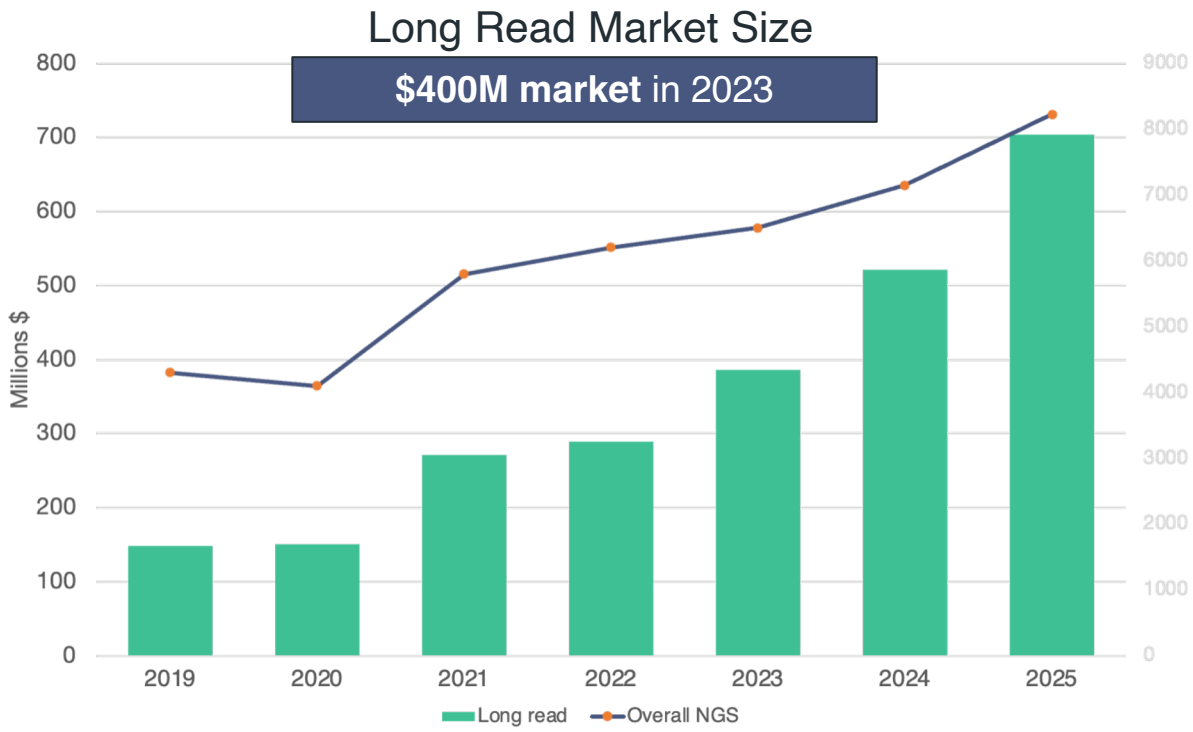
Oxford NANOPORE Technologies

Other partners



ALL Sequencers perform, powered by Twist

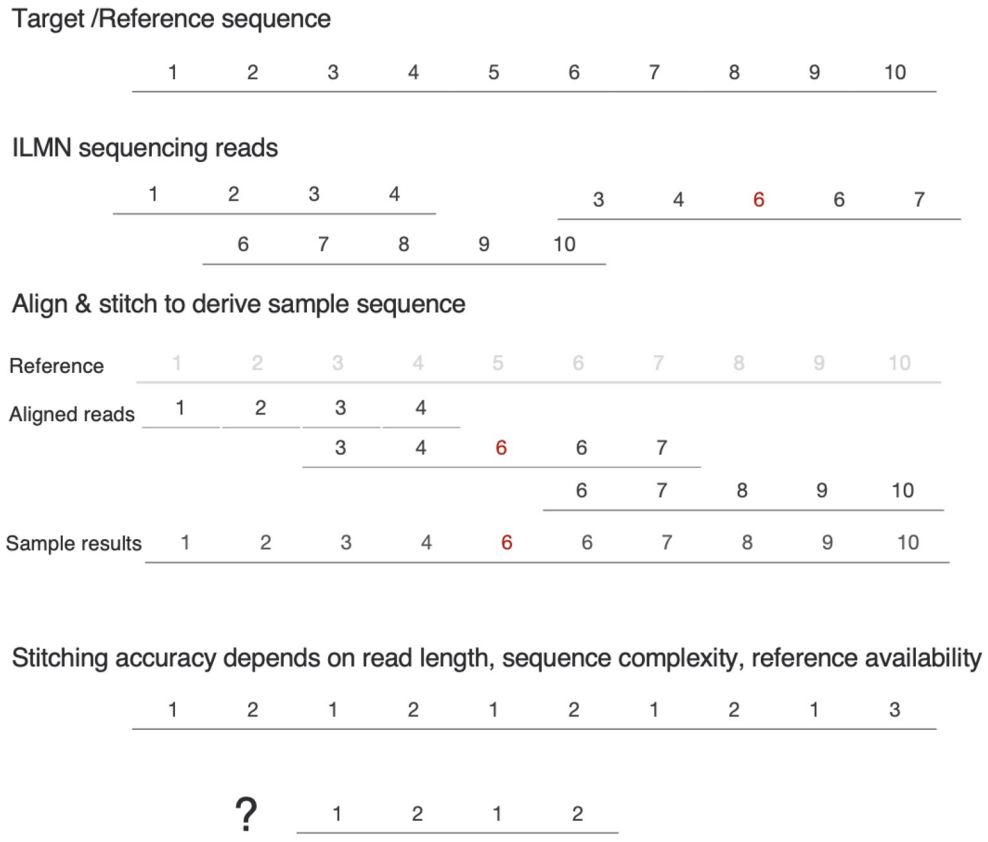
Opportunities in Long Read Sequencing Market



Market sizing derived from public disclosures and earnings

- Long read growth historically tracked with overall NGS market growth
- In 2023, **33% growth outpaced overall NGS market growth** (5%)
- Similar growth rate is expected for the next 2 years

Short read sequencing has limitations that can be overcome with a long read approach



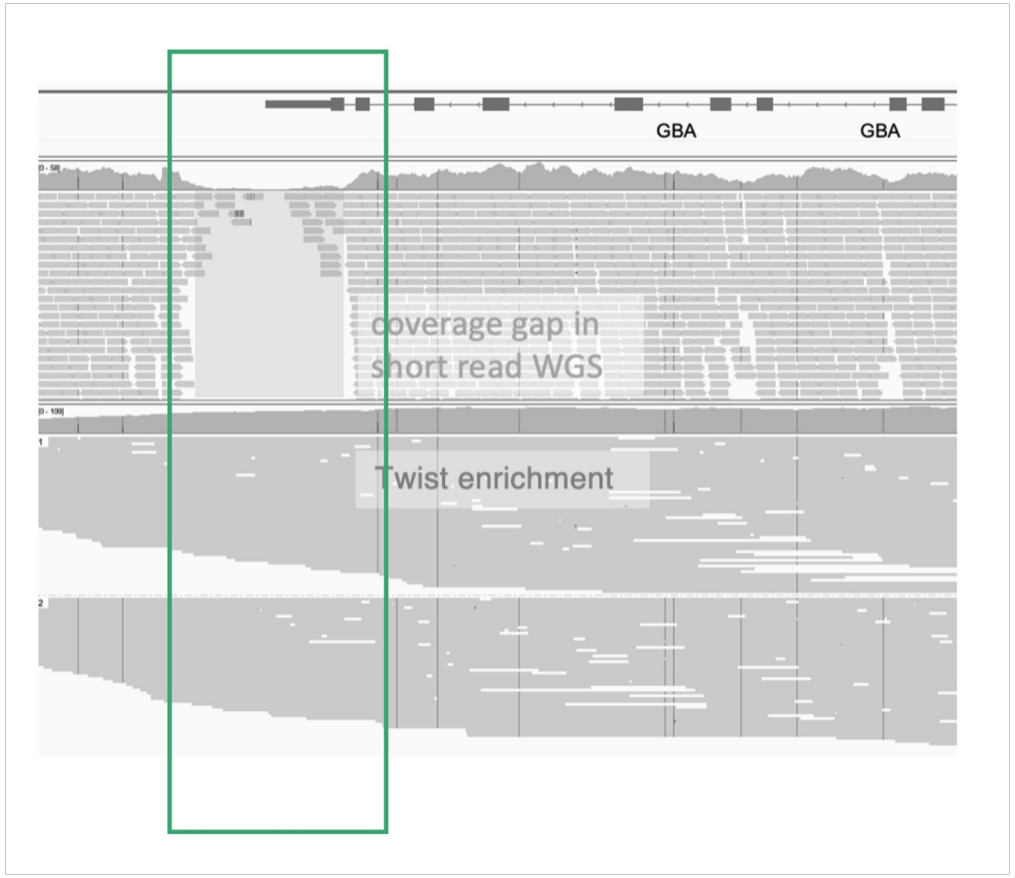
Longer Reads for Deeper Insights

Twist Long Read Fixed and Custom Panels

Target enrichment
+
long read sequencing
to profile important
genomic regions at scale

Extending Twist's target enrichment strategies to regions that are difficult, or impossible, to capture using short read strategies

- ✓ Novel **long-read panel design strategy** for maximum coverage with lowest probe footprint
- ✓ Balanced coverage across **difficult-to-sequence or difficult–to-map regions**
- ✓ **Greater multiplexing** without compromising coverage of key targets



Expanding Platform Optionality

Twist for Element

Exome 2.0 plus Comprehensive Spike-in Workflow

- Exome 2.0 Panel
- **Element Native** EF Library Preparation Kit
- Target Enrichment Reagents
- **Element Native** Blockers

Twist Products are intended for research use only; not for use in diagnostic procedures

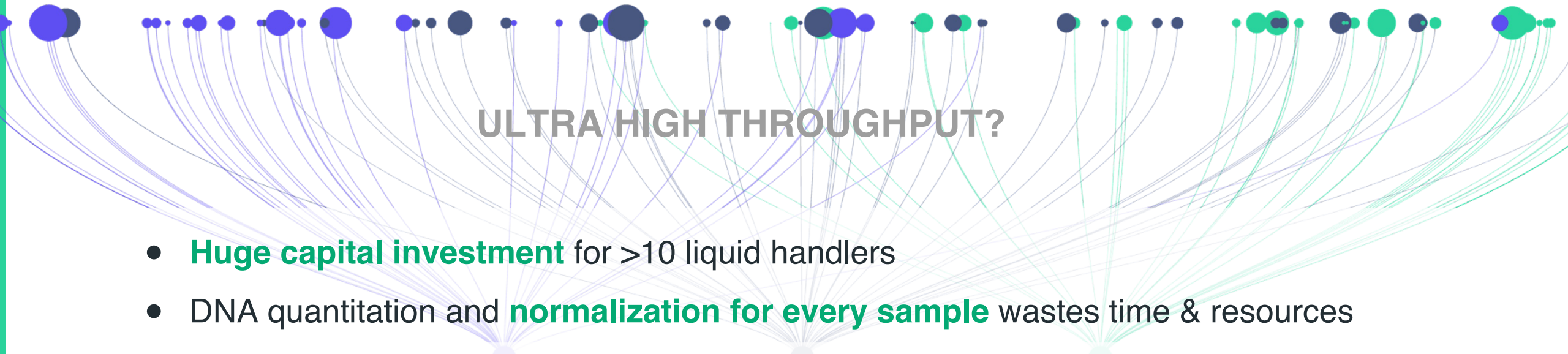
The sequencing platform race is on. What about library preparation innovation?

A 16TB run on NovaSeq X Plus can now fit **3000 exomes** or large panels

The cost of sequencing a human genome is **approaching $100**

Is library preparation keeping up?

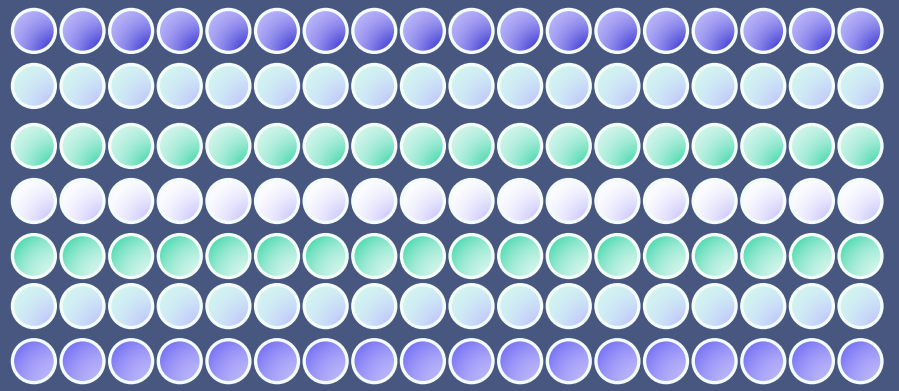
Library preparation is falling behind in Ultra-High Throughput sequencing era



- **Huge capital investment** for >10 liquid handlers
- DNA quantitation and **normalization for every sample** wastes time & resources
- **Consumable costs add up** for pipette tips and purification beads
- Limited sample indexing capacity **wastes flowcell space**
- Overall cost per sample still **lags behind almost 30-year old microarray technology**

Democratizing NGS for all

Quality



Cost

Performance

Introducing Technology Early Access: Twist Flex Prep UHT

Flex Self-Normalization By Ligation (NBL) technology

Input self-normalization without complicating workflow

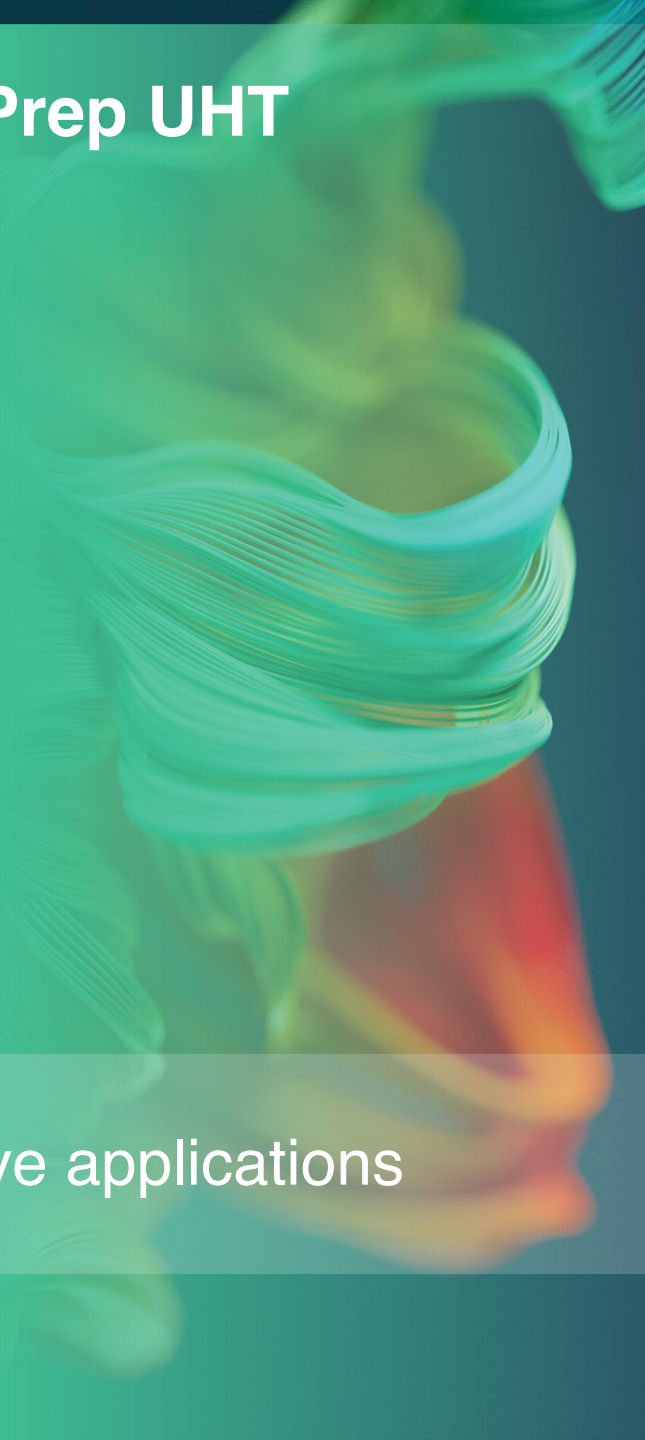
Flex Multiplexing

*Up to **48x** increase in capacity and productivity with existing lab setup*
Consumable cost reduction

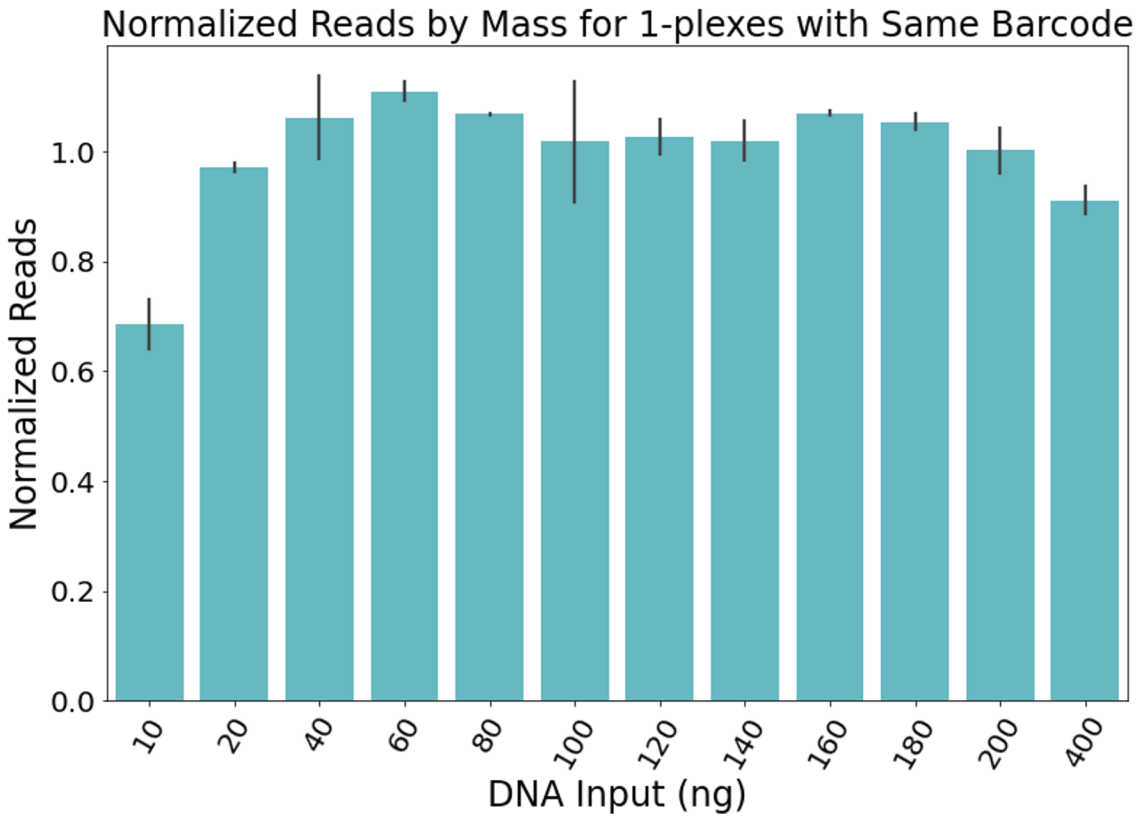
Flex Barcoding

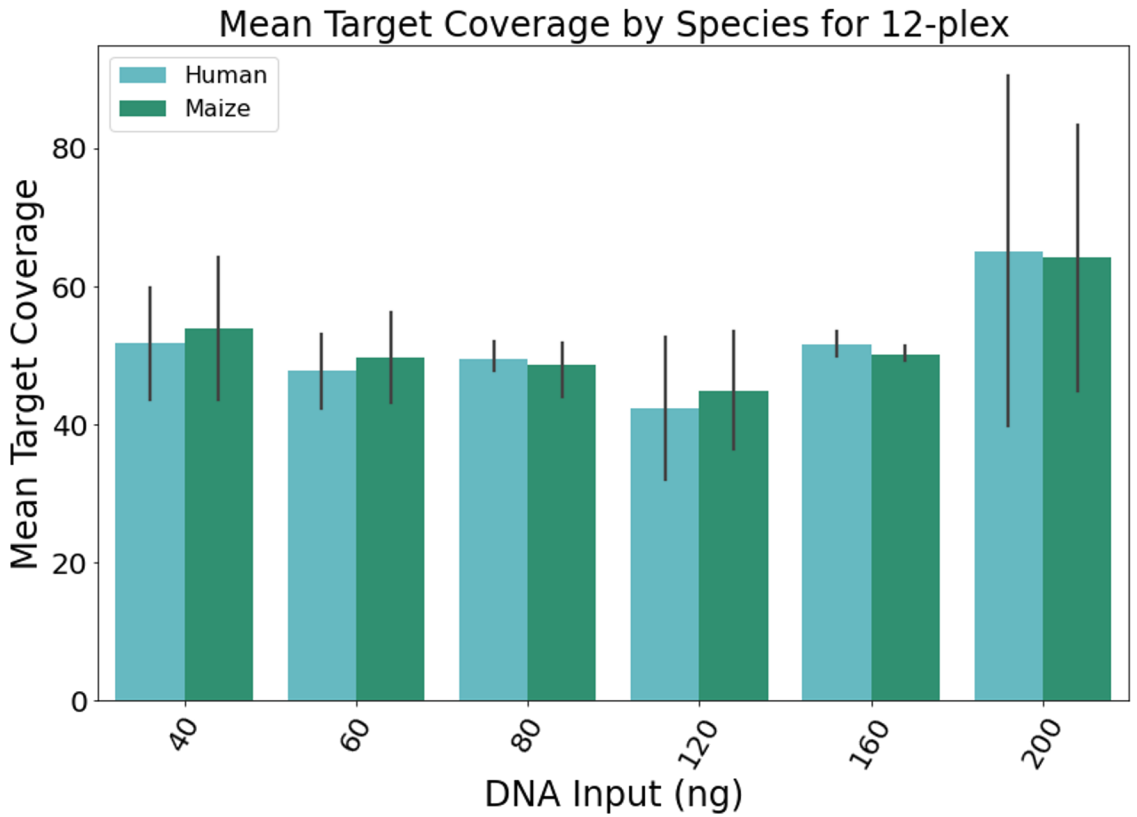
*UDIs for up to **147,000** samples in a single run*

Crush cost barrier for AgGenomics and other cost sensitive applications



Self-Normalization During Ligation, No Extra Workflow Steps

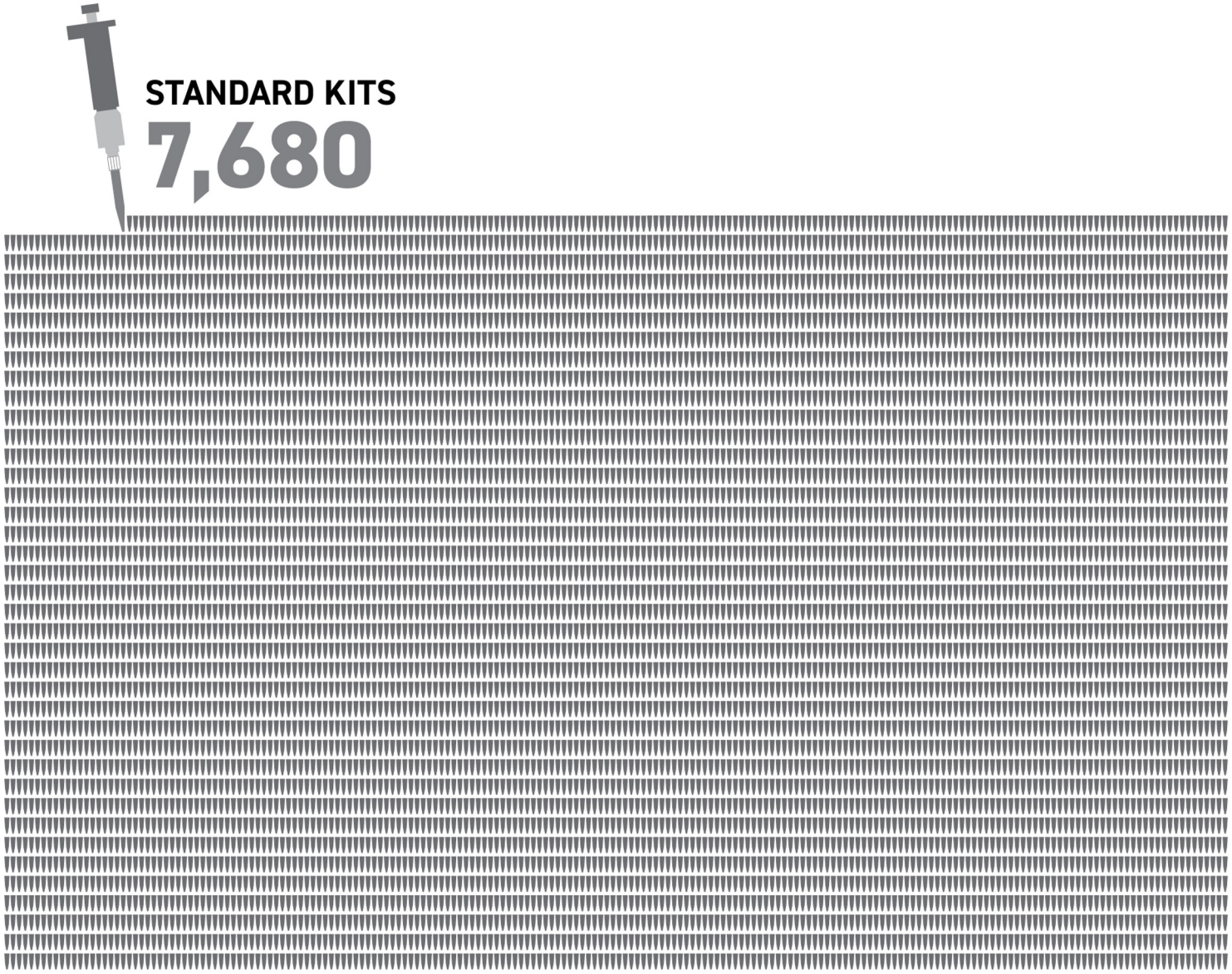




Eliminates upfront steps and delivers **even read representation and target coverage**
with mixed sample inputs between 20ng - 200ng

Individual tips used processing 960 samples

For SPRI beads purification



Individual tips used processing 960 samples

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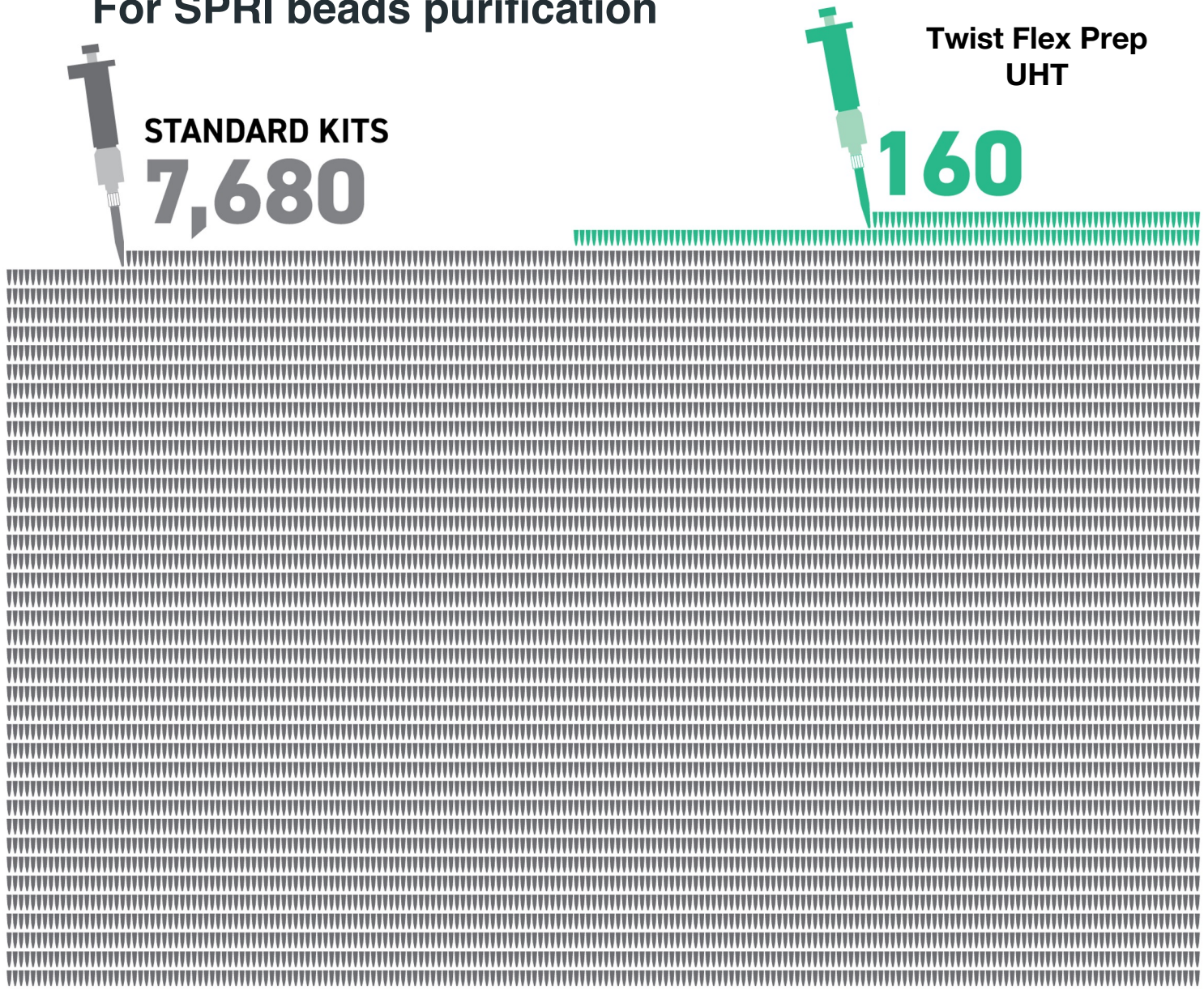
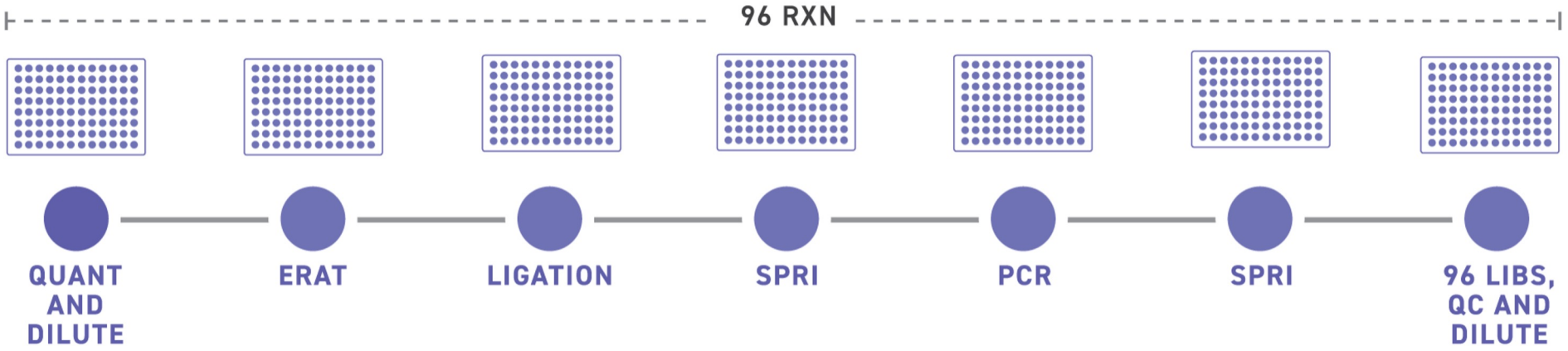


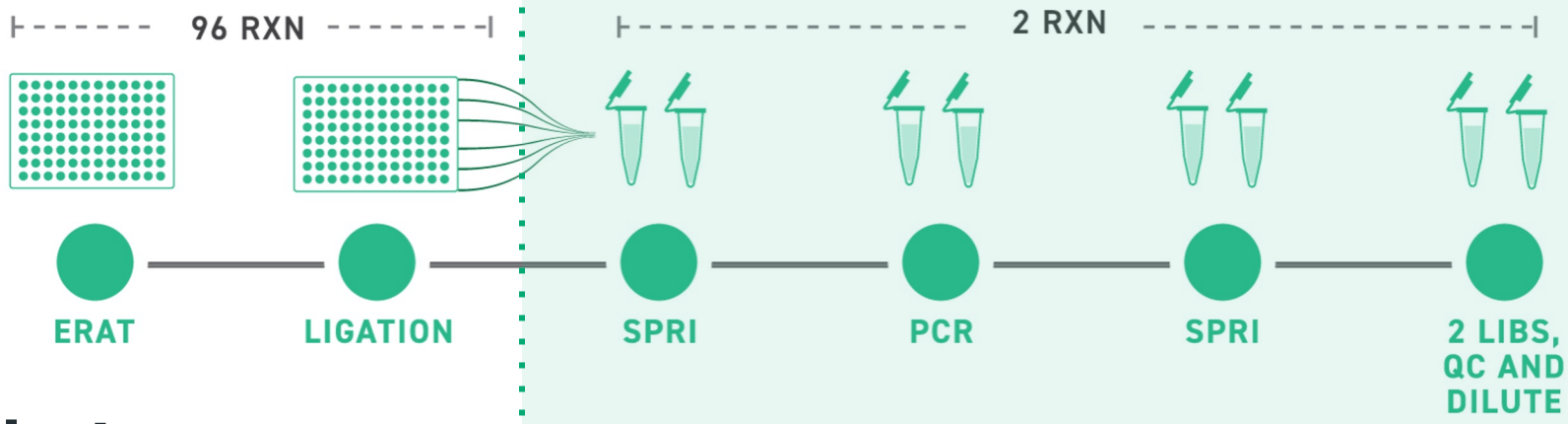
Good for your workflow, good for our planet

Thousands of Samples, Without The Cost: Microarray Conversion

Standard Workflow



Twist Flex Prep UHT Kit (for 48-plex pools)



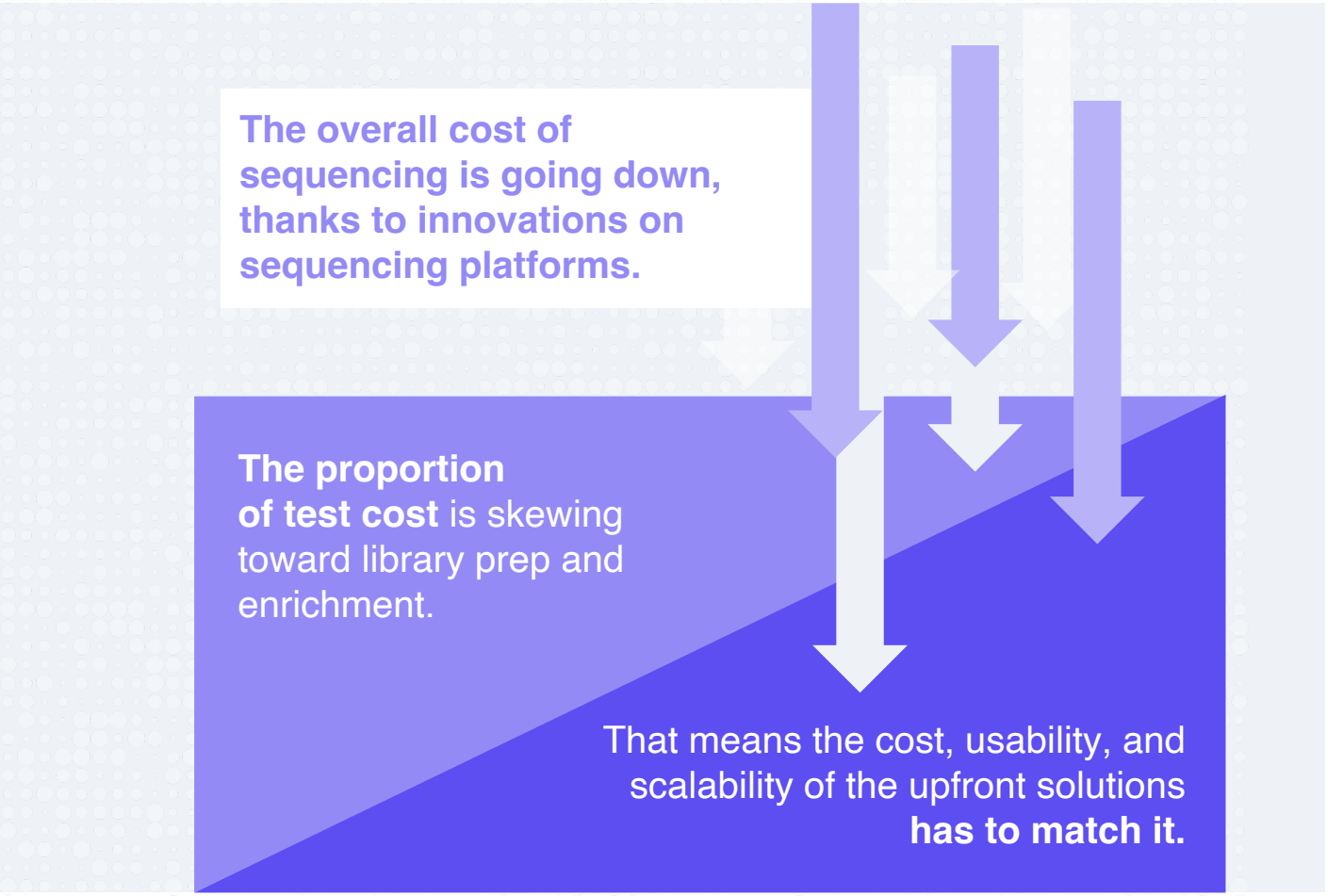
~$500M Market

$10/sample today*

Sample pooling means **98% reduction in per-sample cost** vs. standard workflow after ligation

*Twist internal estimate as of February 6, 2024

Differentiated Library Prep for AgBio: Microarray Conversion



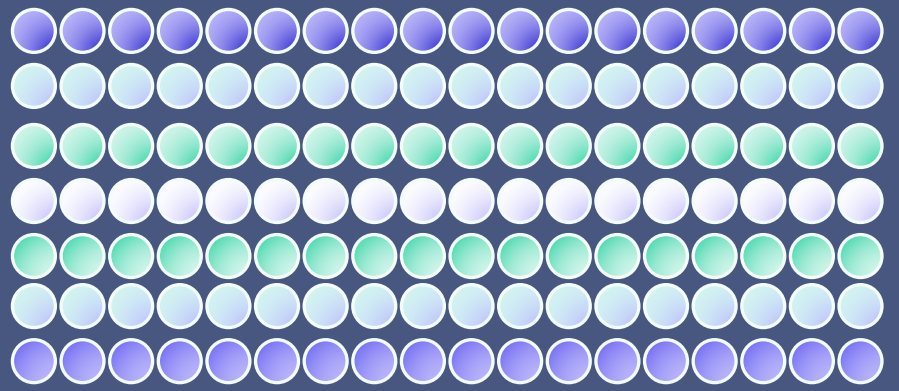
Why is Twist Library Prep a better solution for UHT Agrigenomics studies?

- Addresses **low cost per sample** prep requirement
- **Self-normalization:** LP accepts various sample input amounts
- **Content Flexibility with NGS panels:** add or removed, based on your targets of interest
- **Scalability:** More samples = high powered discovery

Pushing the Boundaries of What's Possible

Quality

Twist Precision Dx Kits



Cost

Twist Flex Prep UHT

Performance

Twist cfDNA Library Prep Kit

Continuing to Push the Boundaries of What's Possible

Tools Today

- Human Exomes
- Fixed Panels
- Custom Panels
- Library Preparation
- Target Enrichment Reagents and Kits
- Synthetic Viral Controls
- Methylation Sequencing
- RNA Sequencing

Targeted sequencing
is powering new applications

- **Liquid biopsy**
- **Rare disease**
- **Oncology**
- **Population genetics**
- **Infectious diseases**
- **Agrigenomics**

THANK YOU