



Investor Day

May 21, 2026

Emily Leproust

CEO and Co-founder

Welcome



Legal Disclaimer

This presentation contains forward-looking statements. All statements other than statements of historical facts contained herein are forward-looking statements 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, projections labeled “FY 2026 Guidance”, statements regarding future growth and expansion, estimated turnaround times, drivers of future revenue and gross margin growth, market size and growth, estimated annual 2026 revenues, ability and timing to achieve profitability, ability and timing to achieve adjusted EBITDA breakeven and ability to maintain or increase gross margins and Twist’s other expectations regarding its future operations plans and financial performance, 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’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 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 is developing obsolete or noncompetitive; the ability to integrate and leverage artificial intelligence and machine learning technologies to improve operational efficiency, product development, and customer solutions; the ability to expand DNA synthesis manufacturing capacity; dependence on one supplier for a critical component; dependence on key personnel; additional regulations that could increase Twist’s costs and delay commercialization efforts; changes in U.S. trade policies and other trade actions that could result in increased costs and supply chain disruptions; the ability to maintain and enforce intellectual property protection; uncertainty as to economic and market conditions and the impact of adverse economic conditions; and the ability to obtain financing when necessary. 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’s business in general, see Twist’s risk factors set forth in Twist’s Annual Report on Form 10-K filed with the SEC on November 17, 2025. Any forward-looking statements contained in this presentation speak only as of the date hereof, and Twist specifically disclaims any obligation to update any forward-looking statement, whether as a result of new information, future events or otherwise.

The presentation also contains supplemental financial information determined by methods other than in accordance with U.S. generally accepted accounting principles (“GAAP”). These non-GAAP measure are not in accordance with, or an alternative for, measures prepared in accordance with generally accepted accounting principles (GAAP) and may be different from non-GAAP measures used by other companies. In addition, these non-GAAP measures are not based on any comprehensive set of accounting rules or principles. A reconciliation of these non-GAAP financial measures may be found starting on page 233 of this presentation.

A reconciliation of adjusted EBITDA for the fourth quarter of fiscal 2026 to a corresponding GAAP financial guidance measure is not available on a forward-looking basis because the Company does not provide guidance on GAAP net loss and is not able to present the various reconciling cash and non-cash items between GAAP net loss and adjusted EBITDA without unreasonable effort. In particular, stock-based compensation expense is impacted by the Company’s future hiring and retention needs, as well as the future fair market value of its common stock, all of which are difficult to predict and are subject to change. The actual amount of these expenses during fiscal 2026 will have a significant impact on Twist’s future GAAP financial results.

Science Without Limits. Solutions without Compromise.

Twist Bioscience Investor Day 2026

Agenda

- **Welcome**
 - Tour
 - DSPS Strategy Session
 - Fireside Chat with Dr. Frances Arnold
 - Customer Presentations
-

Lunch

- NGS Strategy Session
- Customer Presentations
- Financial Overview
- Culture
- Q&A

Twist Bioscience is Writing the Future

Delivering Products Across the Biological Continuum

Proprietary

silicon-based DNA
synthesis platform

~\$377M

revenue
(FY 2025)

Enabling

therapeutics, diagnostics, research, industry,
and applied markets

\$442 - \$447M
guided FY26 revenue
(May 4, 2026)

~1,000
employees

Multi-billion \$
growing markets

Established global footprint, capacity for growth

Portland ☆
San Francisco (HQ) ☆
San Diego

Boston

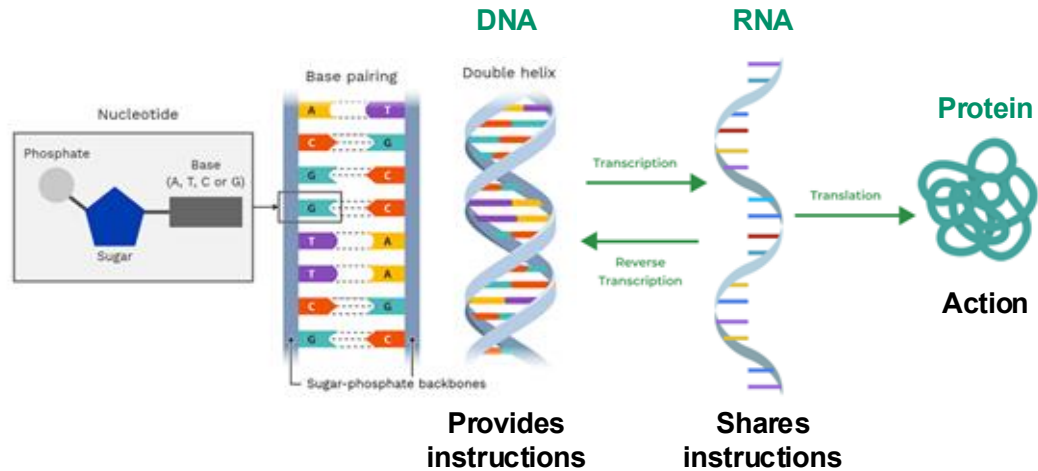
EU

China

Singapore

☆ Manufacturing

Biology Is Increasingly Understood Through Reading and Writing DNA: Twist at the Forefront



**Twist DNA Synthesis
and Protein Solutions**

**Twist NGS
Applications**

Biology

Biology is the outcome we read, understand and engineers



Research

Advance knowledge
and uncover biology



Diagnostics

Detect, monitor and
guide decisions



Therapeutics

Discover and develop
transformative therapies



Applied/Industrial

Engineer biology for
health, sustainability
and beyond

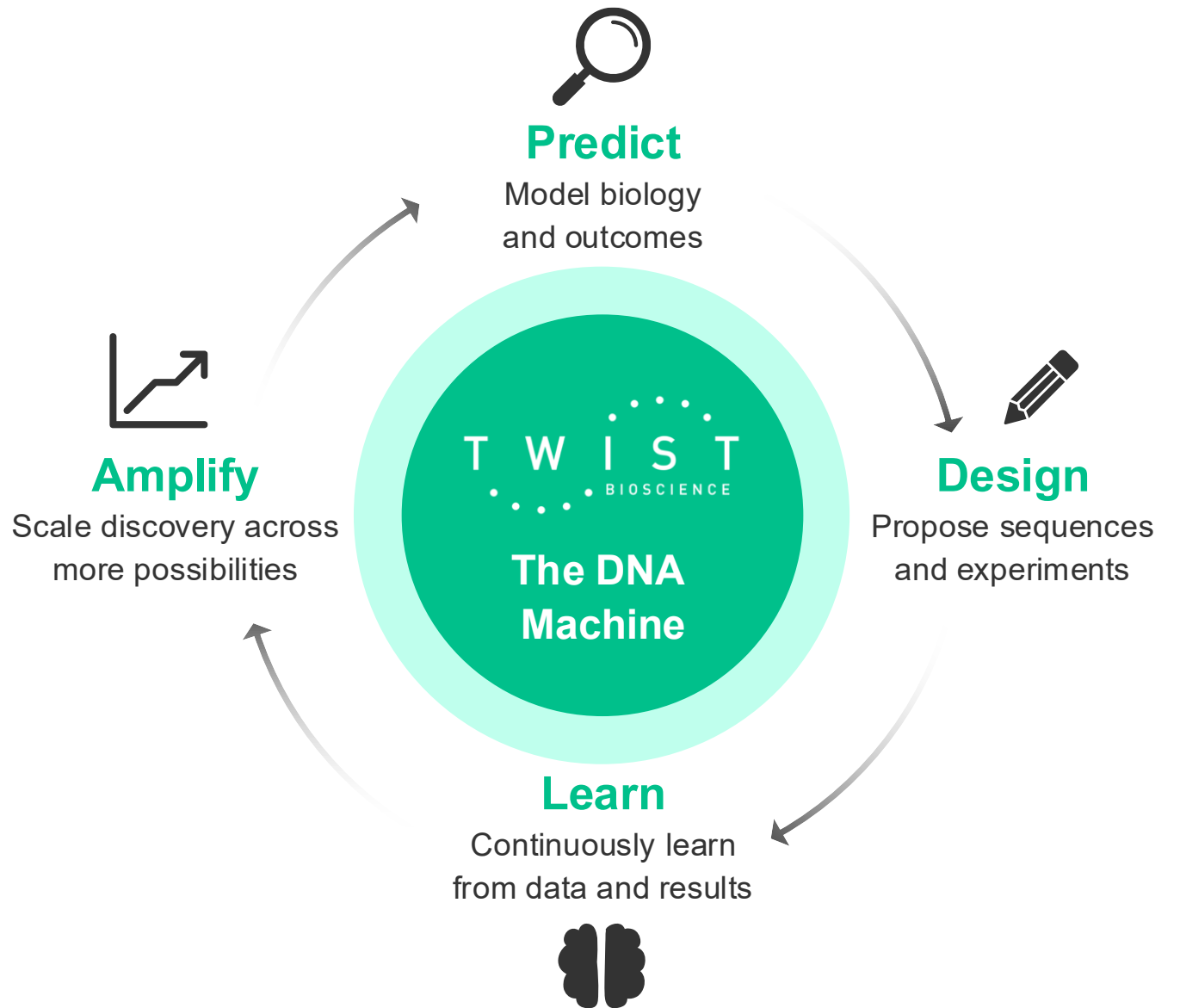
Uniquely Positioned at the Intersection of Biology and AI

Reading and writing DNA is increasingly important to drive biological insights and clinical action

AI makes discovery more DNA-driven

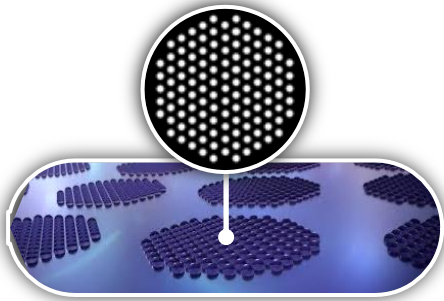
DNA-driven discovery accelerated by AI: shifting paradigm from trial-and-error to systematic, scalable sequence design

Twist is the DNA Machine: leadership in DNA synthesis creates a critical data flywheel that is informing the future of biology



Power of the Platform

Our differentiation is
the silicon chip



**Expanding Revenue-
Generating Workflows on
the Same Infrastructure**

You'll see today:

- Best-in-class, proprietary platform built for scale
- Scalable, purpose-built manufacturing infrastructure + software
- Continued innovation to drive tech optimization and new product launches
- Ability to serve large and rapidly growing markets

Differentiated Versatile Advantage

Miniaturized proven chemistry

- Cost advantage (less reagent, waste)
- Higher throughput
- Customization at scale

Uniquely enables critical applications

- AI Discovery
- MRD Express
- Enzyme Engineering
- Nucleic Acid Therapeutics

Purpose-Built Platform to Power Large Growth Opportunities

Proprietary

DNA synthesis
technology platform

Robust and Flexible

product portfolio

**Premium
white-glove**
service capabilities

Experienced
team

Manufacturing

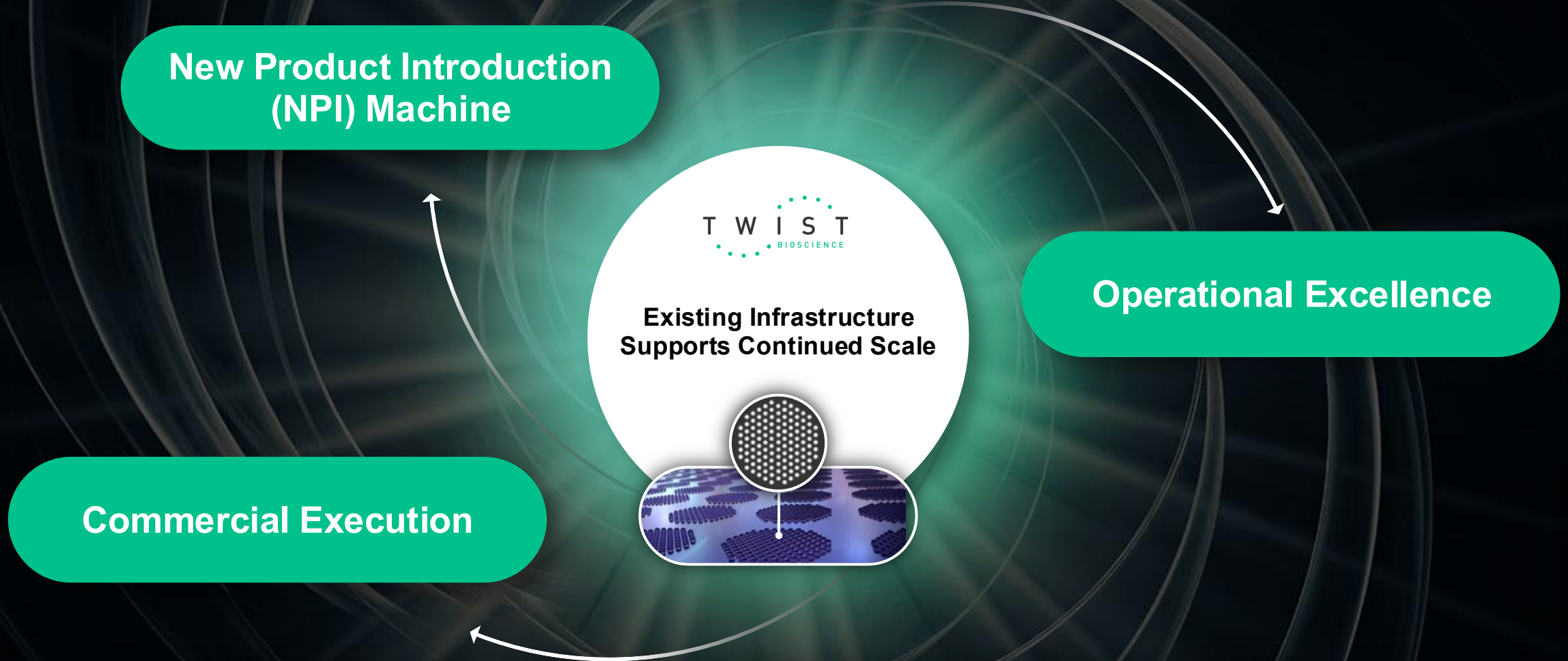
prowess paired with
automation excellence

Diversified
customer base in
multiple markets

**Meet
Customers**
where they are

Unique
growth opportunities

How Twist Operates Sets Us Apart from Others



Twist Bioscience: NPI Machine

Expand

Expand available opportunity by adding new products to open multi-billion dollar markets (e.g. FlexPrep™)

Build

Build portfolio of innovative products to load more on the chip, increasing throughput, lowering cost (e.g. MRD Express)



Invest

Invest and scale infrastructure ahead of demand inflections (e.g. proteins, AI)

Deploy

Rapidly deploy capabilities into emerging opportunities (e.g. Ab characterization)

Operational Excellence Underpins Success

1

Quality &
Reliability

2

Customization

3

Scale

4

Structural
cost advantage

KEY ENABLERS



Innovative software



Proprietary silicon-based platform

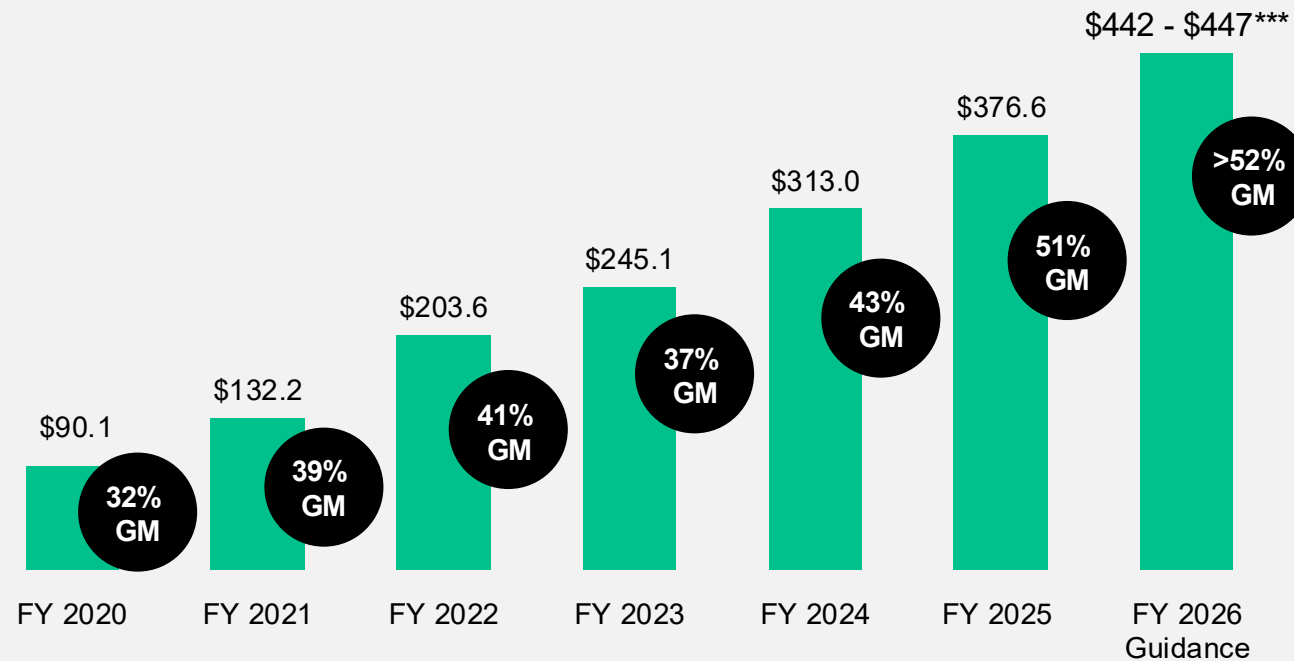


Automation, state-of-the-art manufacturing system

Proven Commercial Execution, Financial Discipline

Annual Revenue

\$ Millions



33% CAGR
over last 6 years

20% points
margin improvement

Diversified
revenue base

Adjusted OpEx*	\$126M	\$164M	\$248M	\$260M	\$253M	\$262M
Adjusted EBITDA**	(\$93.8M)	(\$106.5M)	(\$152.8M)	(\$147.3M)	(\$93.6M)	(\$46.9M)

* Adjusted OpEx is defined as SG&A and R&D expenses excluding depreciation and amortization and stock-based compensation expense. See adjusted OpEx reconciliation on page 234

**Adjusted EBITDA is defined as net income (loss) adjusted to exclude interest income, income tax expense, depreciation and amortization, other income/expense, net, stock-based compensation expense and other items detailed in the reconciliation table below that we believe are not indicative of our ongoing results. See page 233 for Adjusted EBITDA Reconciliation

***Guidance as of May 4, 2026

One Platform, Many Customized Solutions

Meeting customers where they are, powering growth across expanding platforms

How we win



Operational excellence



NPI machine



Commercial execution

T W I S T
BIOSCIENCE

**Differentiated
Silicon Platform
Speed and Scale**



**AI-enabled antibody
discovery workflows**

AI-ready wet-lab at scale



**Molecular residual
disease**

Personalized diagnostic research
at scale



**Enzyme-engineered
NGS**

Better performance,
integrated workflow



**Nucleic acid
therapeutics**

Future growth frontier

Twist culture

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Manufacturing Facility Tour

Manufacturing front end

Manufacturing back end (genes, IgG proteins, data characterization)

A few Twisters

Labs

Manufacturing Execution System Software

***No photos, no videos, no recording, no Meta glasses**

James Diggans

VP, Biosecurity and Policy

Manufacturing Execution System Demonstration



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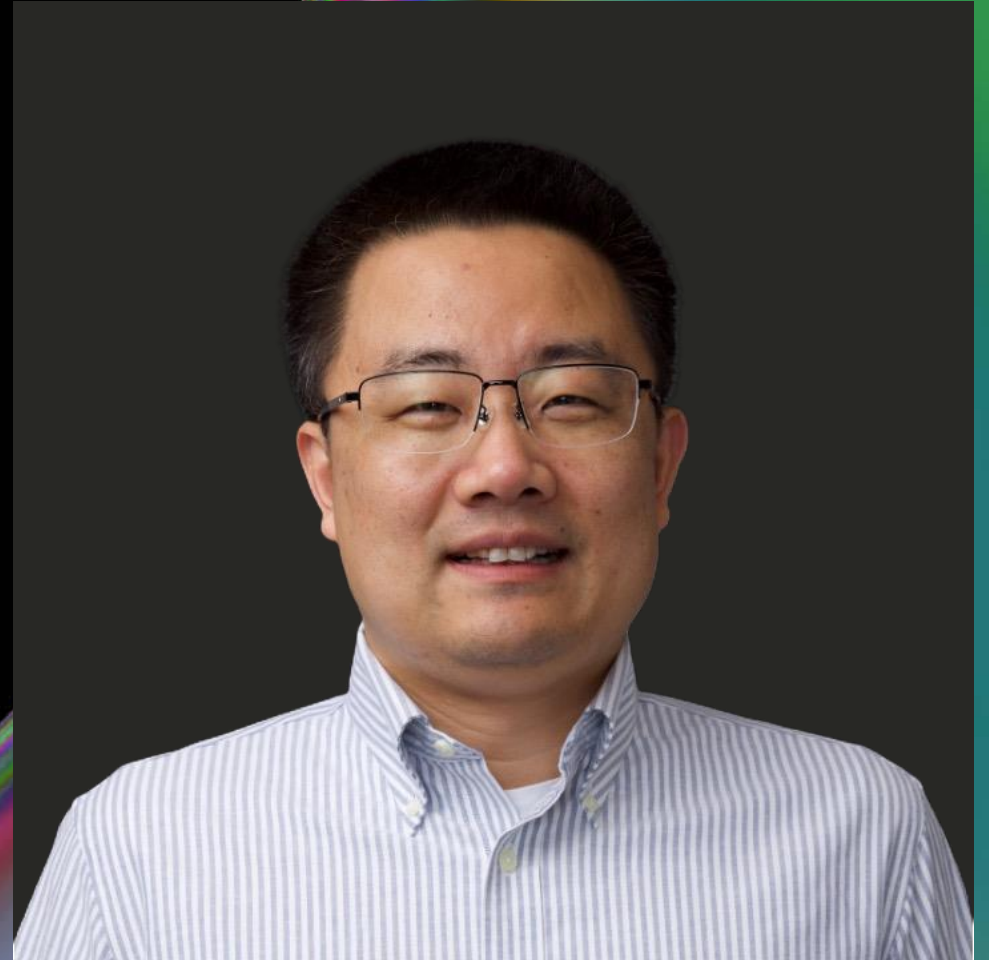
DNA Synthesis and Protein Solutions

Advancing scientific discovery across traditional and AI-enabled workflows with scalable DNA synthesis and protein solutions

Siyuan Chen

Chief Technology Officer

Silicon Technology, Operational Excellence



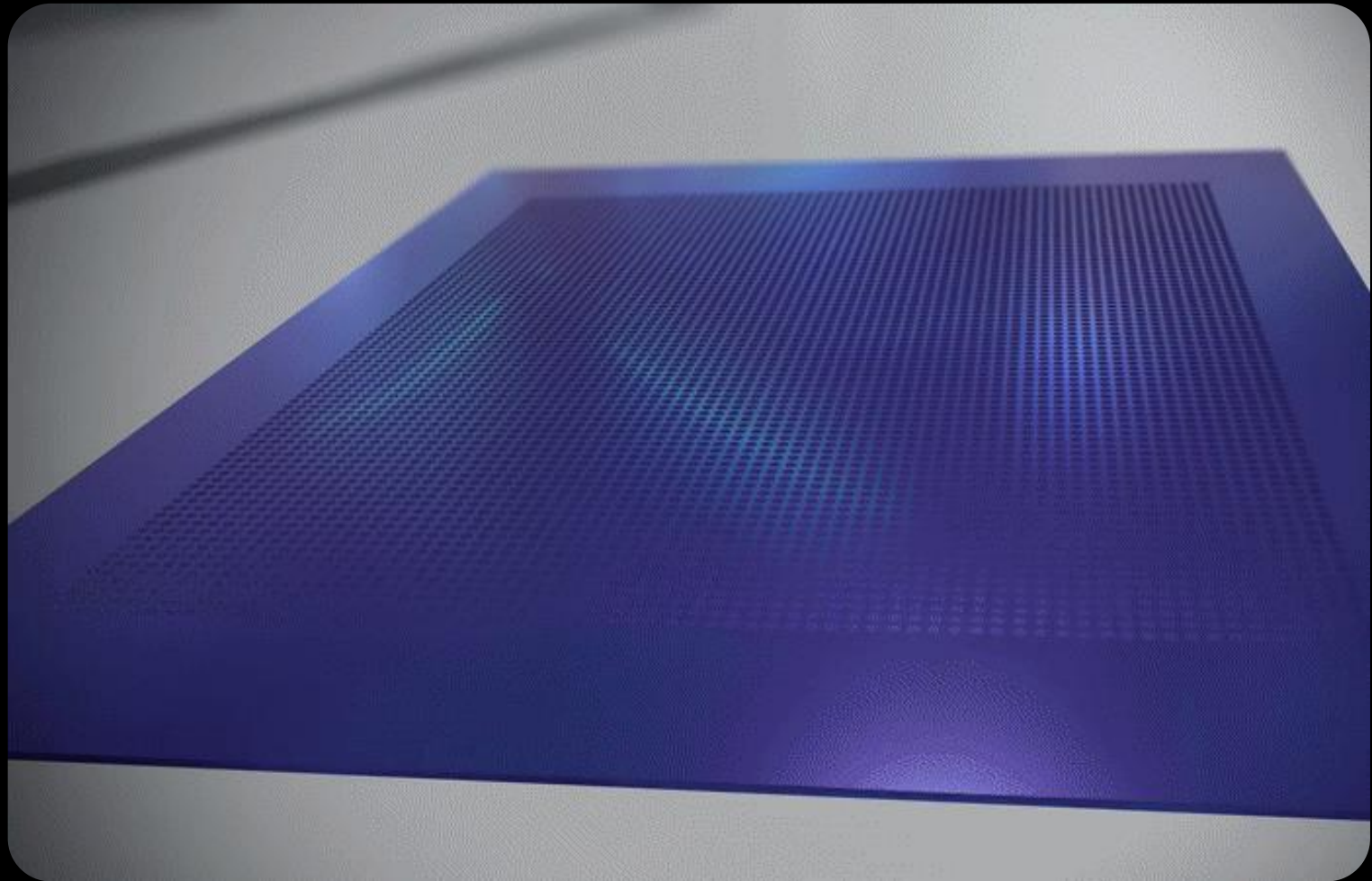
It All Starts with Our Silicon Technology – And Automation

DNA SYNTHESIS

Oligos, Variant libraries, MGF, Gene pools,
Fragments, Clonal genes, IgG, siRNA/ASO
oligos, mRNA (coming soon)

PROTEIN SOLUTIONS

In vitro antibody discovery, *in vivo* antibody
discovery, protein production, antibody
characterization



>32 million
oligonucleotides
per day capacity

Direct synthesis
up to **500 bases**

Industry leading
accuracy

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Silicon Platform
Speed and Scale**



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discovery workflows**

AI-ready wet-lab at scale



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Personalized diagnostic research
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**Enzyme-engineered
NGS**

Better performance,
integrated workflow

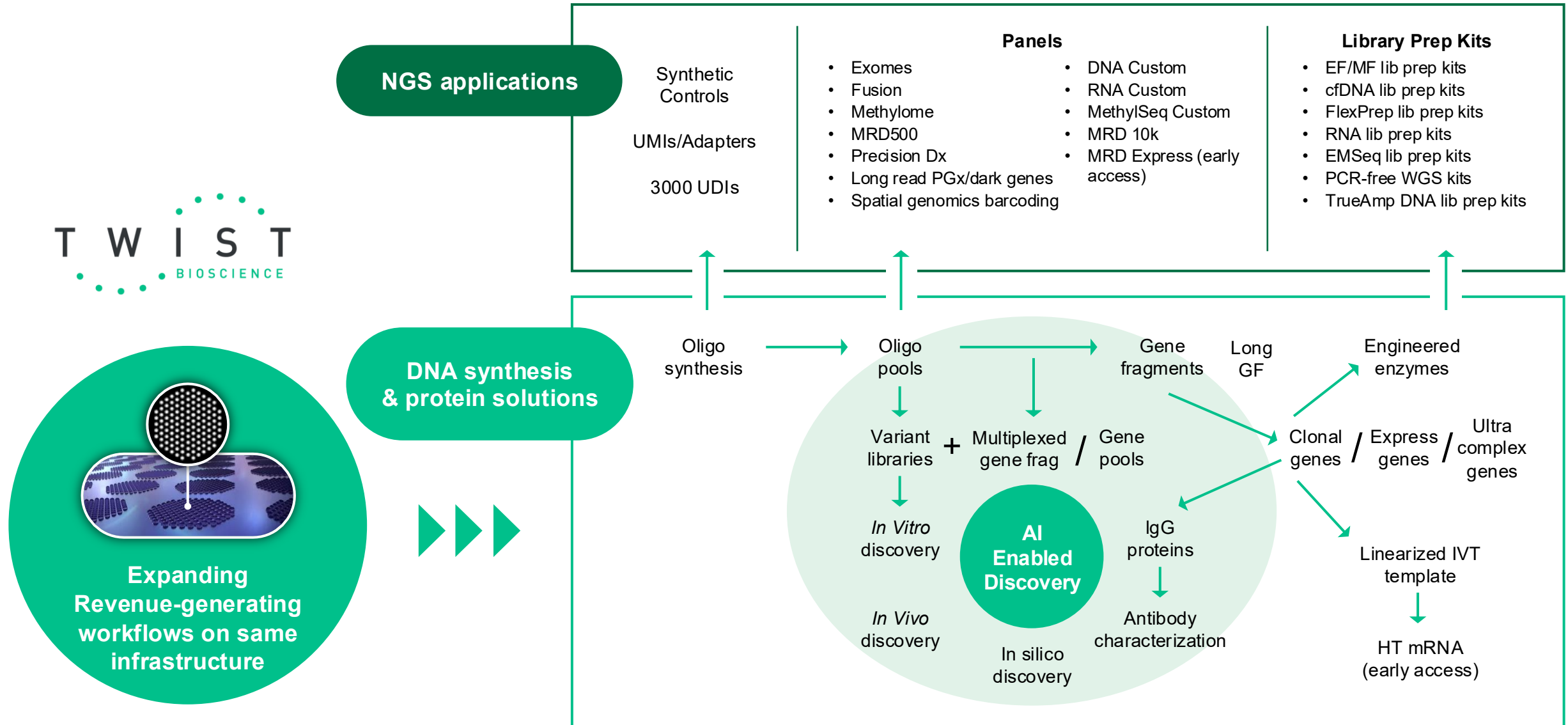


**Nucleic acid
therapeutics**

Next growth frontier

Twist culture

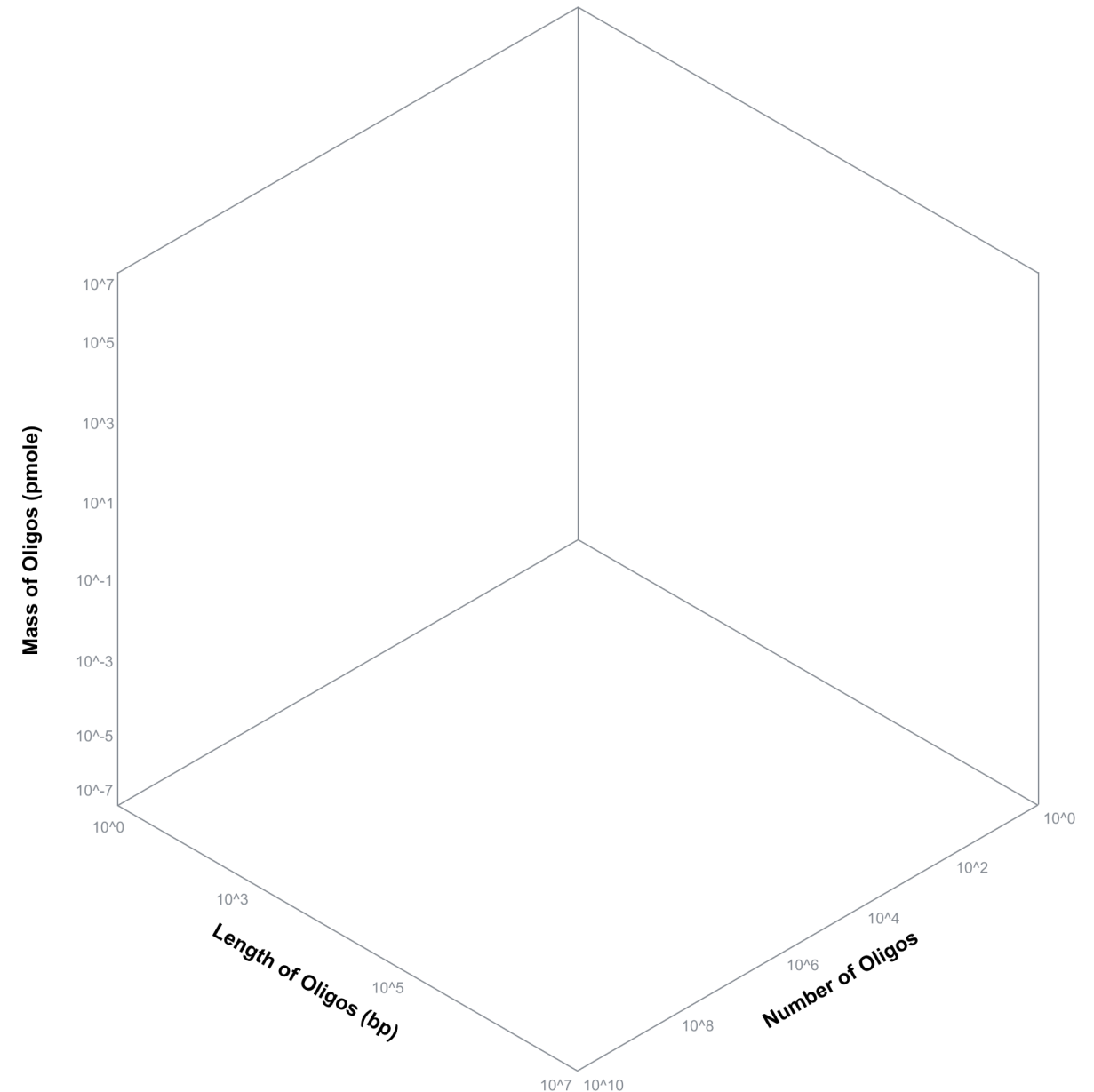
Synergistic Solutions that Work Together



Applications mapped by oligo number, mass, and length

Group

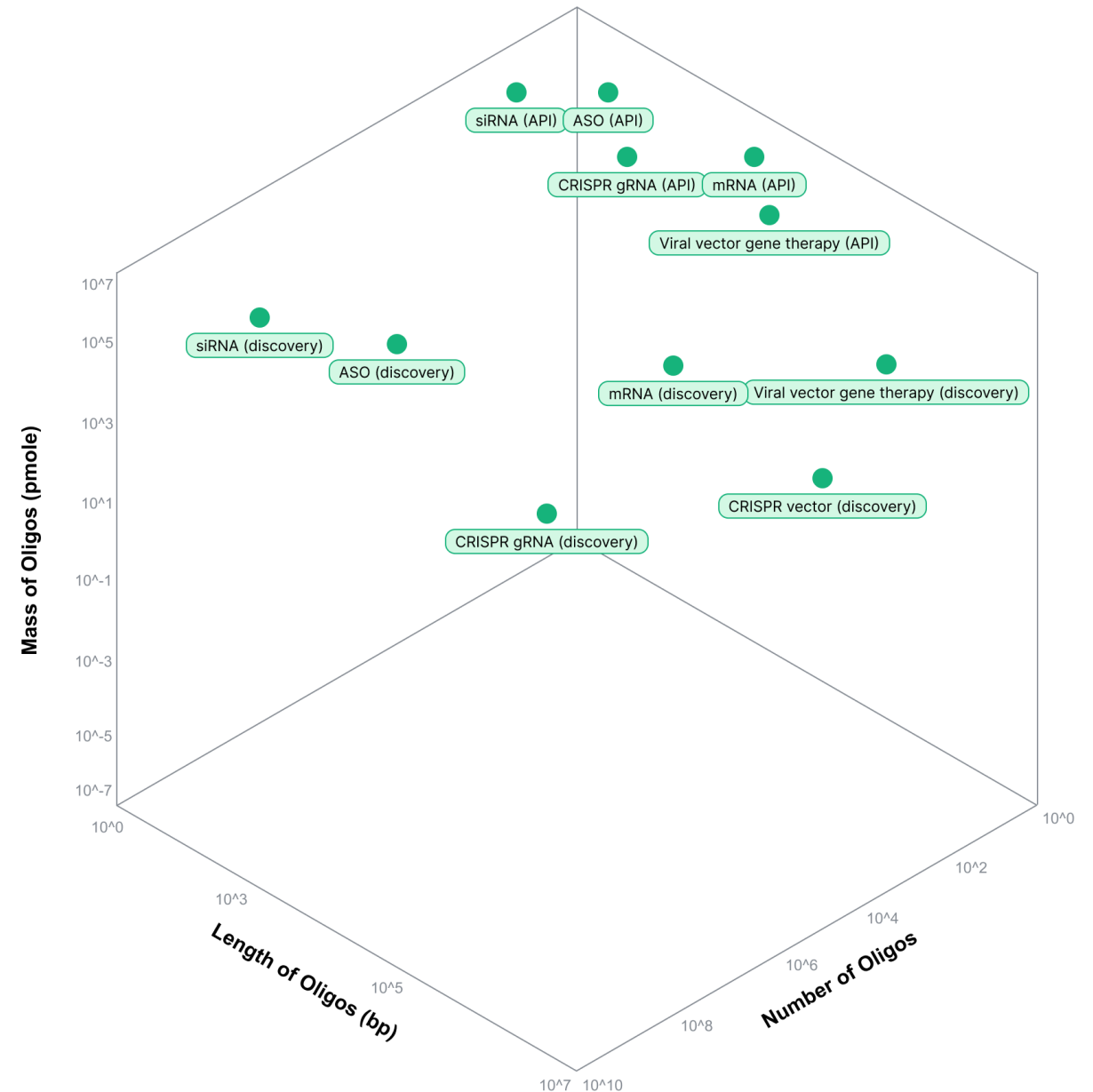
- Therapeutics
- Diagnostics
- Genomics
- Protein engineering



Applications mapped by oligo number, mass, and length

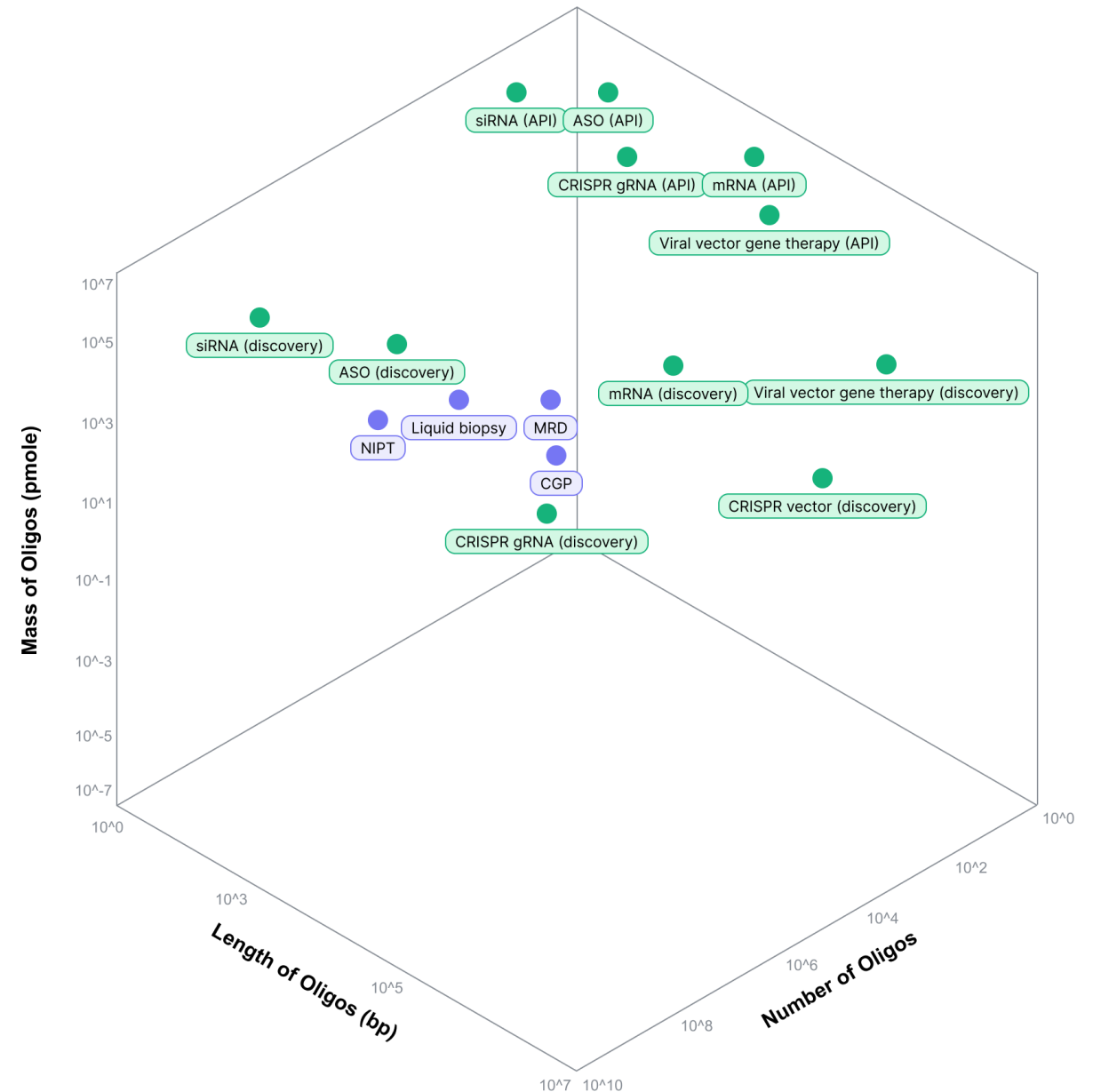
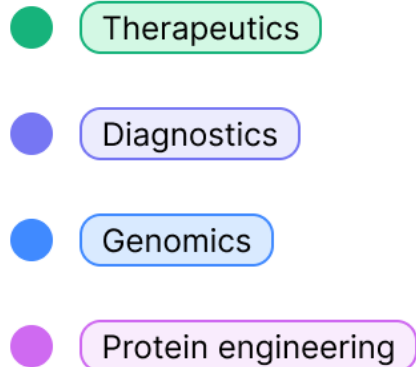
Group

- Therapeutics
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- Protein engineering



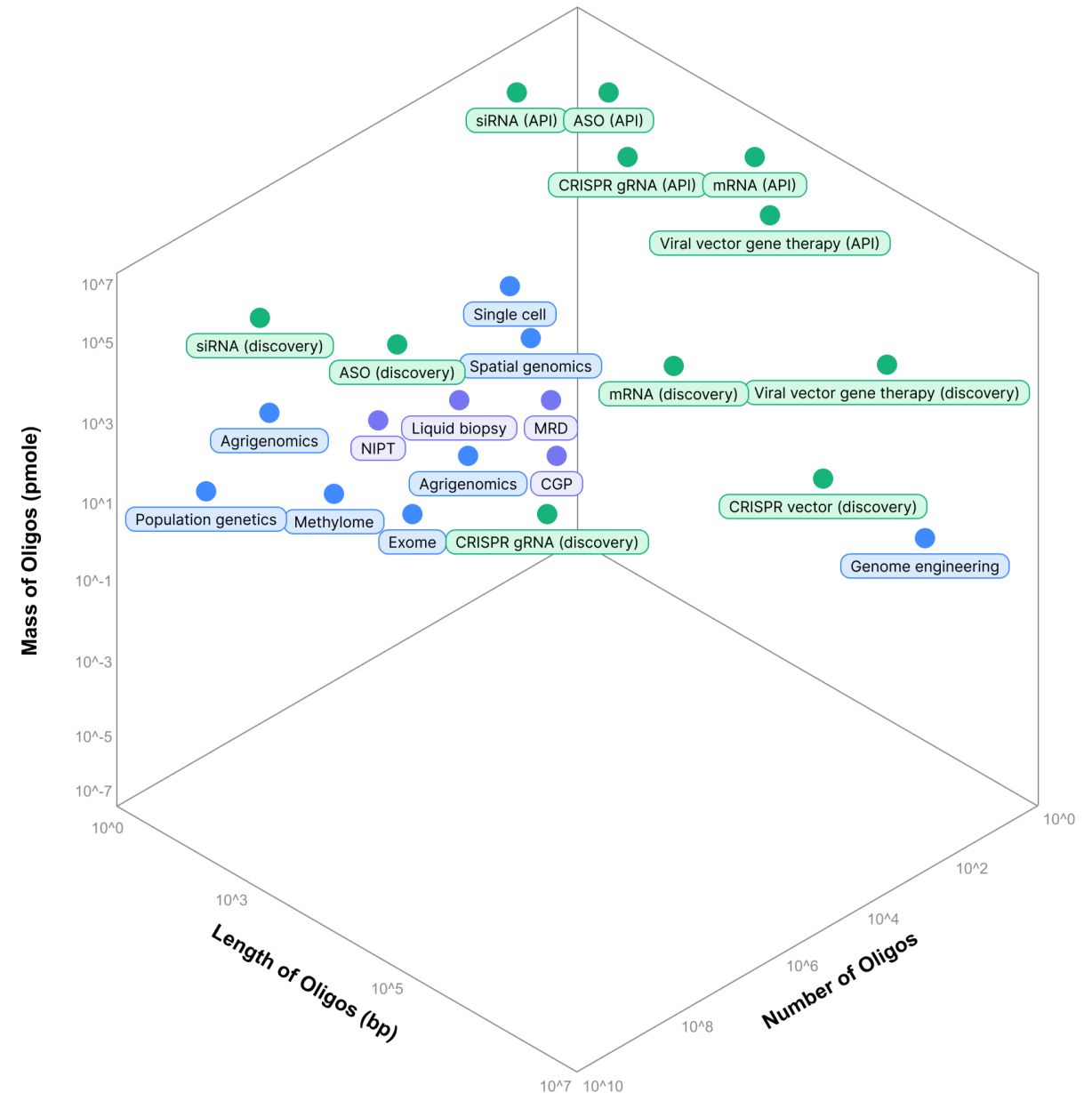
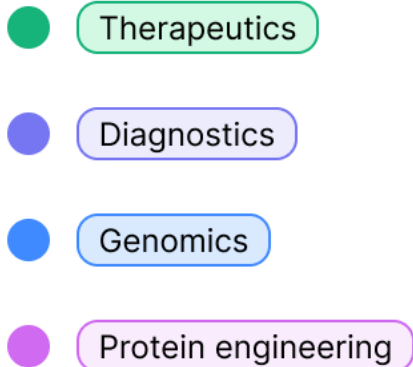
Applications mapped by oligo number, mass, and length

Group



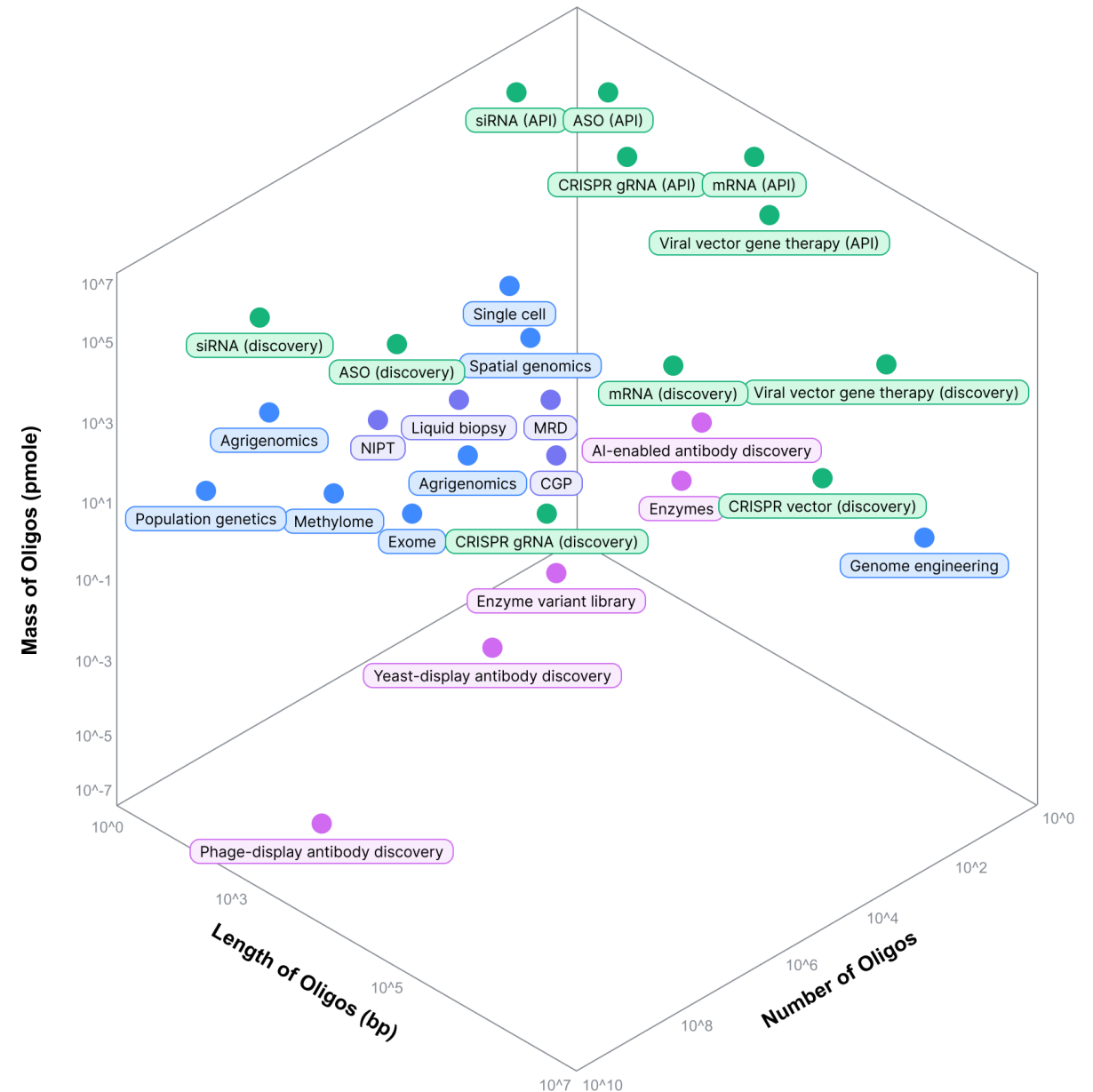
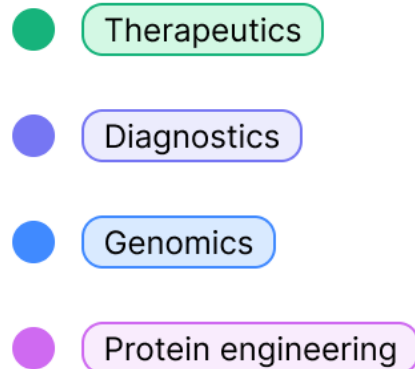
Applications mapped by oligo number, mass, and length

Group



Applications mapped by oligo number, mass, and length

Group



Oligo Application Reference Table

Application	Group	# Sequences	Mass (pmol)	Length (bp)
siRNA (discovery)	Therapeutics	10,000	1	21
ASO (discovery)	Therapeutics	10,000	1	25
siRNA (API)	Therapeutics	10	100,000	21
ASO (API)	Therapeutics	10	150,000	25
CRISPR gRNA (discovery)	Therapeutics	100,000	0.1	200
CRISPR vector (discovery)	Therapeutics	100	0.1	12,000
CRISPR gRNA (API)	Therapeutics	10	100,000	200
Viral vector GT (discovery)	Therapeutics	1,000	100	10,000
Viral vector GT (API)	Therapeutics	10	100,000	10,000
mRNA (discovery)	Therapeutics	1,000	100	5,000
mRNA (API)	Therapeutics	10	1,000,000	5,000
MRD	Diagnostics	2,000	0.1	120
Liquid biopsy	Diagnostics	15,000	0.1	120
CGP	Diagnostics	25,000	0.1	120
NIPT	Diagnostics	100,000	1	50
Spatial Genomics	Genomics	50,000	10	150
Agrigenomics (200k)	Genomics	200,000	10	80
Exome	Genomics	400,000	0.1	120
Methylome	Genomics	1,500,000	0.1	120
Single cell	Genomics	10,000	10	60
Agrigenomics (20k)	Genomics	20,000	1	70
Population Genetics	Genomics	1,000,000	0.1	120
Genome engineering	Genomics	10	0.1	1,000,000
AI-enabled antibody discovery	Protein Engineering	1,000	1	1,500
Phage-display antibody discovery	Protein Engineering	10,000,000,000	0.000001	1,500
Yeast-display antibody discovery	Protein Engineering	1,000,000	0.0001	1,500
Enzymes	Protein Engineering	1,000	0.1	3,000
Enzyme variant library	Protein Engineering	100,000	0.01	3,000

Group

- Therapeutics
- Diagnostics
- Genomics
- Protein engineering

One Platform, Many Customized Solutions

Meeting customers where they are, powering growth across expanding platforms

How we win



Operational excellence



NPI machine



Commercial execution

T W I S T
BIOSCIENCE

**Differentiated
Silicon Platform
Speed and Scale**



**AI-enabled antibody
discovery workflows**

AI-ready wet-lab at scale



**Molecular residual
disease**

Personalized diagnostic research
at scale



**Enzyme-engineered
NGS**

Better performance,
integrated workflow



**Nucleic acid
therapeutics**

Next growth frontier

Twist culture

Continuing to Iterate and Improve Proprietary Platform

- Continuing low error rate with improved **consistency**
- Continue to **reduce reagent cost** and **chemical waste**
- Faster synthesis **increases writer capacity**, enhances products, and expands throughput
- Enables **new product introductions**

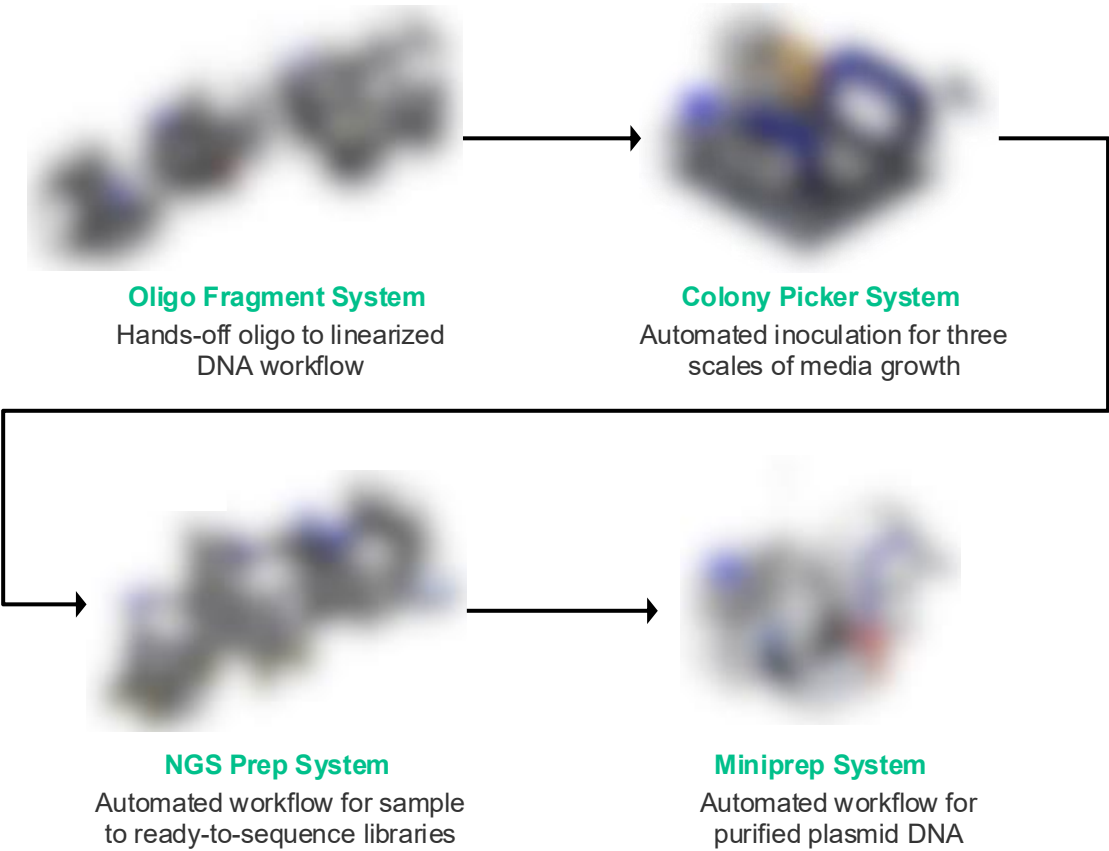


All data is for ~1,000,000 oligos at femtomole scale



Automated from Start to Finish

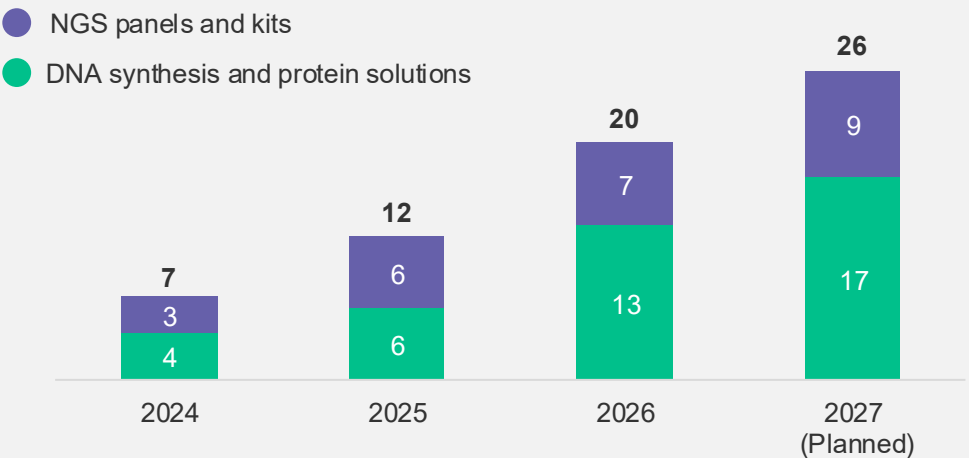
Automate key bottleneck steps



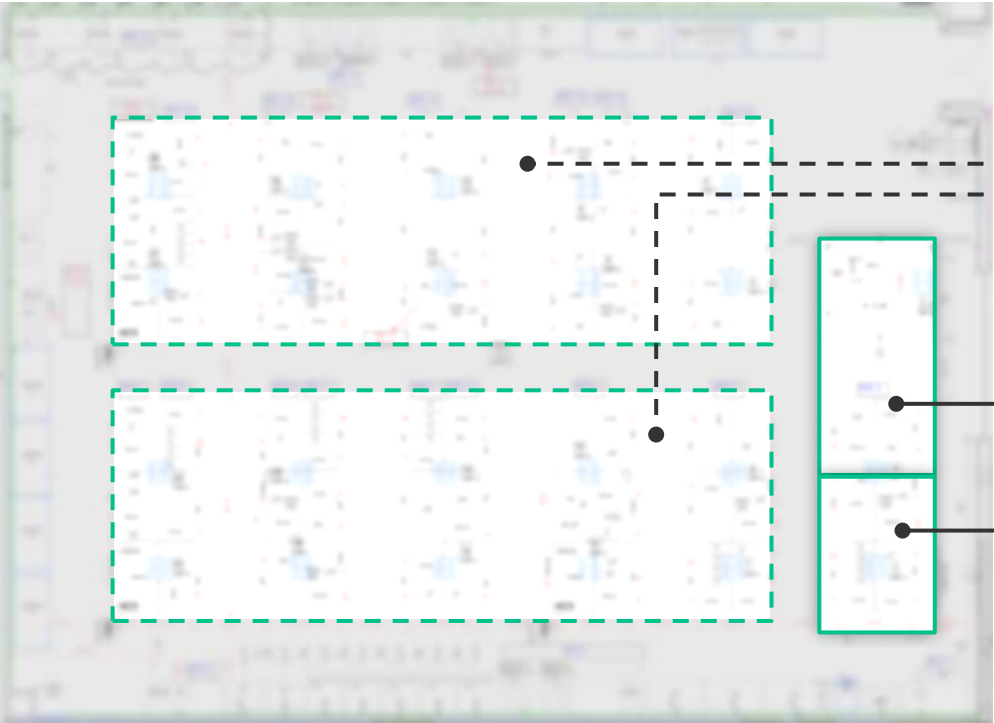
Building scalable process so that **multiple processes can run on the same tools** (e.g. complexity process with minimum addition of equipment)

Enable scaling with more integrated systems

Number of integrated systems



Automating the Automation: Doubling Throughput in 20% of Physical Footprint



Then
Gene fragment workstation
(step 1 and step 2)
~950 sq.ft. + ~950 sq.ft.

Now
2 integrated systems
System 1 ~150 sq.ft. + System 2 ~160 sq.ft.

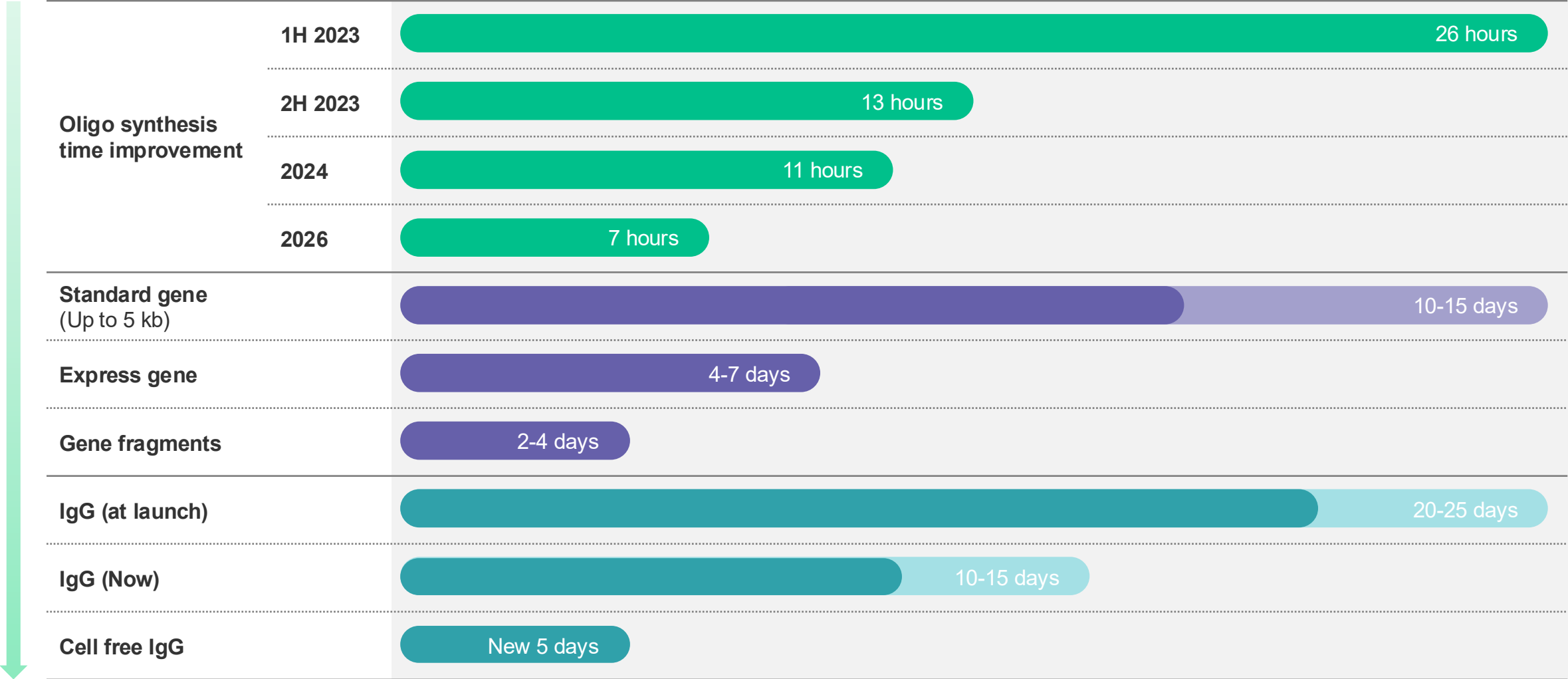
	Automated	Integrated
# of operators	3-4	1-2
Hands-on time (hours)	9-10	1-2
Batch size	12 plates	16 plates
Tracking steps	50% reduction in integrated	

Now, we are manufacturing
**2x gene fragments in
1/5 the space**

We “automated
the automation”

- ↑ Increased capacity
- ↑ Increased productivity
- ↓ Reduced headcount required

In Pursuit of Speed: Decreased TAT over Time



Operational Excellence Delivers Consistent Value to Margins and Cash Position

FY24:

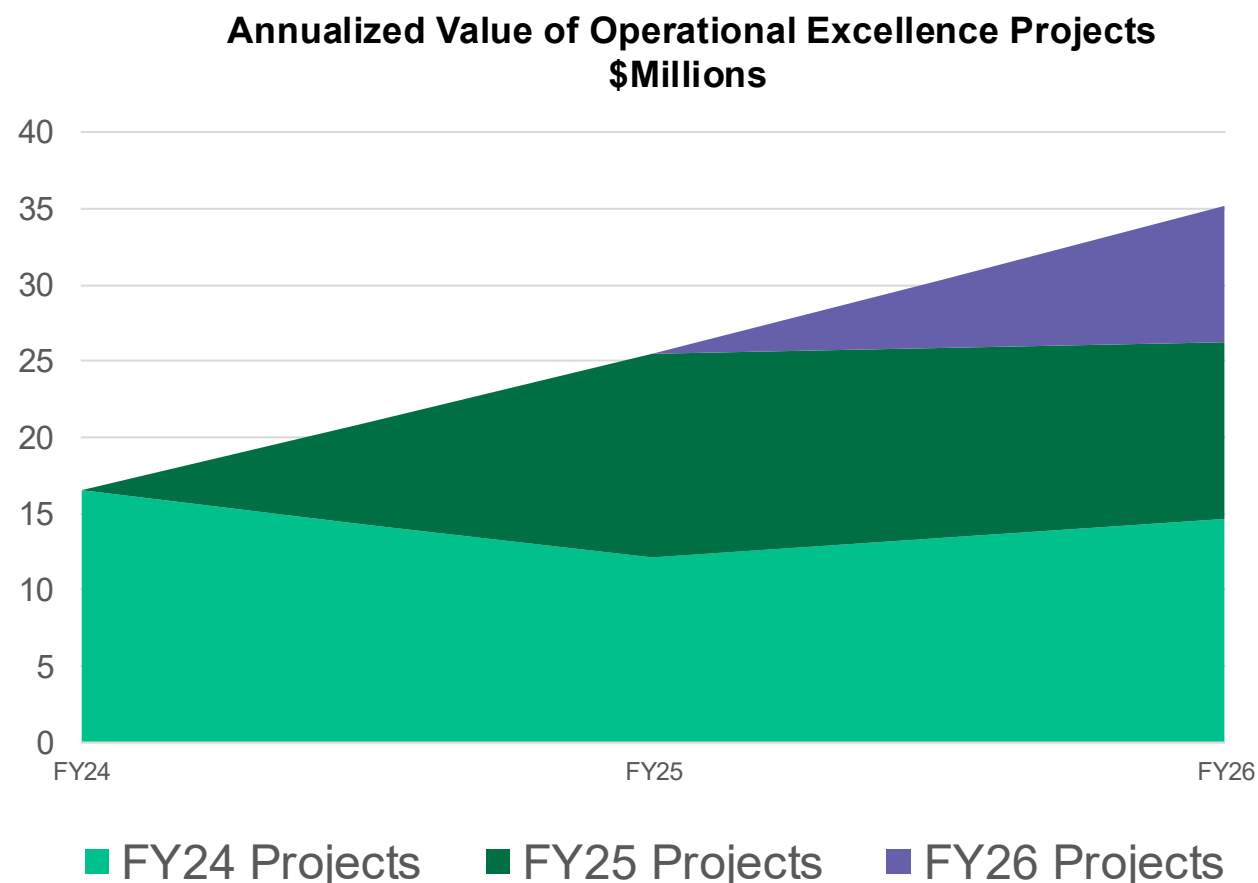
18 projects worth **\$17M**

FY25:

28 projects worth **\$13M**, and additional **\$12M carry-forward** from FY24

1H'FY26:

18 projects worth **\$9M** (annualized) with **\$26M carry-forward** from FY24 and FY25



Operational Excellence: Panel Synthesis Advancement

Customers launching bespoke MRD assays need additional capacity for their product line

Requiring workflows to be



Incredibly
fast



Highly
efficient



Superior
quality

To support critical decisions

Our Approach

Anticipate

To see the
ramp coming

Plan & Prepare

To assure
reliability

Execute

To ensure
delivery

Results

Enabled full use of
walkaway system

Upgraded hardware and software and leveraging our exceptional engineering and software teams

With a fixed headcount, we increased capacity by **10X** and reduced turnaround time **significantly**

Consumables savings of ~\$2M+ first year savings

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Dr. Frances H. Arnold

Nobel Laureate and Linus Pauling Professor
of Chemical Engineering, Bioengineering and Biochemistry;
Director, Donna and Benjamin M. Rosen Bioengineering
Center at the California Institute of Technology

Fireside Chat with Dr. Emily Leproust



Colby Souders

Chief Scientific Officer

AI-Enabled Drug Discovery



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Synergistic Solutions that Work Together

2026

NGS applications

Synthetic Controls
UMIs/Adapters
3000 UDIs

- Panels**
- Exomes
 - Fusion
 - Methylome
 - MRD500
 - Precision Dx
 - Long read PGx/dark genes
 - Spatial genomics barcoding

- DNA Custom
- RNA Custom
- MethylSeq Custom
- MRD 10k
- MRD Express (coming soon)

- Library Prep Kits**
- EF/MF lib prep kits
 - cfDNA lib prep kits
 - FlexPrep lib prep kits
 - RNA lib prep kits
 - EMSeq lib prep kits
 - PCR-free WGS kits
 - TrueAmp DNA lib prep kits



DNA synthesis & protein solutions

Oligo synthesis

Oligo pools

Gene fragments

Long GF

Engineered enzymes

Variant libraries
In Vitro discovery
In Vivo discovery

Multiplexed gene frag
Gene pools
AI Enabled Discovery
In silico discovery

IgG proteins
Antibody characterization

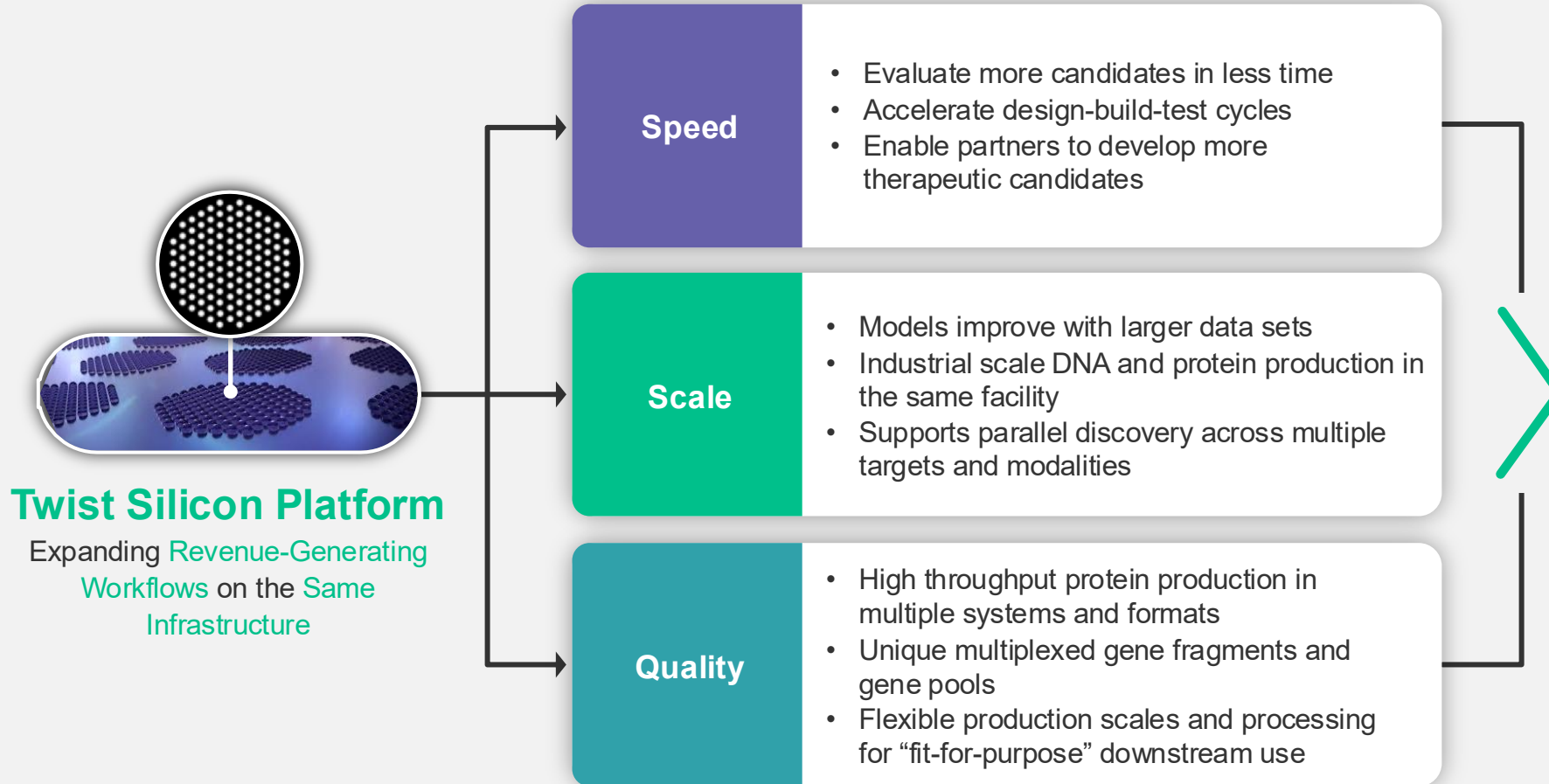
Clonal genes / Express genes / Ultra complex genes
Linearized IVT template
HT mRNA (early access)



More
on the same chip

*Introduced in 2025

AI-Enabled Antibody Discovery: DNA Determines Speed, Scale, Quality of Data

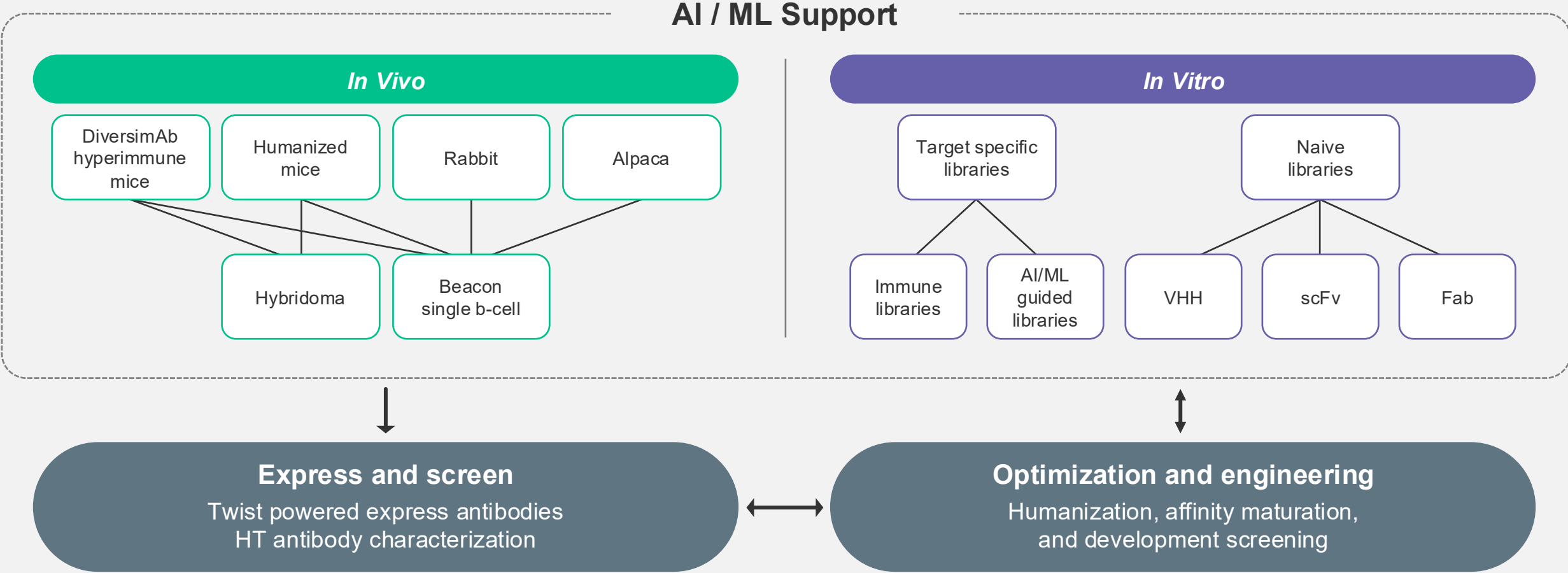


AI protein and antibody discovery starts with DNA. Twist’s silicon-based synthesis platform turns the key input bottleneck into a strategic advantage

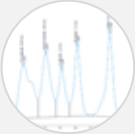
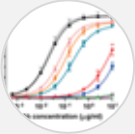


AI-ready sequence
→ **protein** → binding/
characterization
data sets

We Partner with Researchers to Provide Comprehensive Support for Therapeutic Discovery



Diverse, Scalable Assay Capabilities for Antibody and Protein Characterization

Automated throughput protein production		Protein purification - High throughput automated small-scale purification - Medium to large scale purification of immunogens, reagents & up to 100 mg+ of mAbs
Binding evaluation		ELISA - Antibody screening with crude/unpurified samples - Screening of purified mAbs and various protein formats - Indirect and capture formats available
Antibody functional assessment		SPR and BLI - Reagent validation (binding affinity & target specificity) - Binding kinetics & multiple blocking formats available - Epitope binning
Antibody functional assessment		Flow cytometry and cell-based assays - Binding validation on engineered and primary cell lines - Screening of purified mAbs for on-cell apparent K_D - Functional assays (internalization, cell signaling, agonist/antagonist activity)
Quality, stability, and developability assessment		Developability assessment - SEC, CIC, HIC, AC-SINS, BVP-ELISA (or OVA) off-target - DLS and nDSF: T_m, T_{onset}, T_{agg}, rH, T_{size}

Broad and deep capabilities



Big Tuna



MicroLab STAR



AKTA pure



HPLC



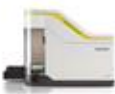
LabChip



Carterra LSA



Octet RH96



iQue



Sony MA900



NanoTemper Panta



Lunatic



Uncle

AI Discovery Expands Twist from a DNA Supplier to a Broader Protein and Data Partner



Differentiator: Deep antibody discovery expertise

- Proprietary antibody discovery CRO business
- We know what AI customers need from data quality and workflow design

Differentiates Twist from other high-throughput manufacturers and traditional CROs



Protein generation

- High-throughput production at customer scale
- Expression of full-length IgG proteins



Data generation

- Expertise in characterization workflows
- Scalable plate-based 96 / 384 well formats
- Existing CROs lack ability to operate at this AI-required scale

Foundation: DNA making

Industry-leading TAT

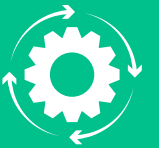
Highest throughput

Strong capability

Exceptional quality

Required foundation: best-in-class DNA writing

DNA synthesis, high fidelity, and large-scale manufacturing capacity



Scaling customization

High-throughput automation

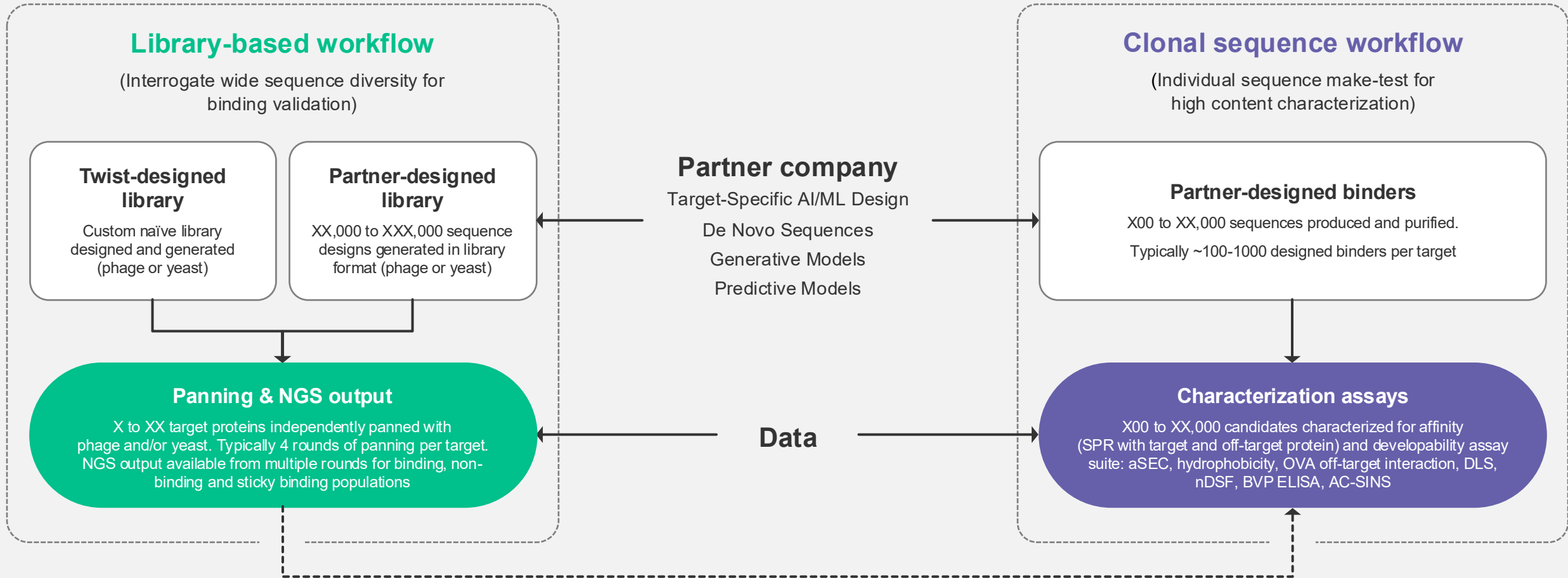
Manufacturing Execution System

Logistics infrastructure

Twist combines an unmatched DNA foundation, scaled protein and data generation, and deep discovery expertise to **serve AI antibody discovery workflows**

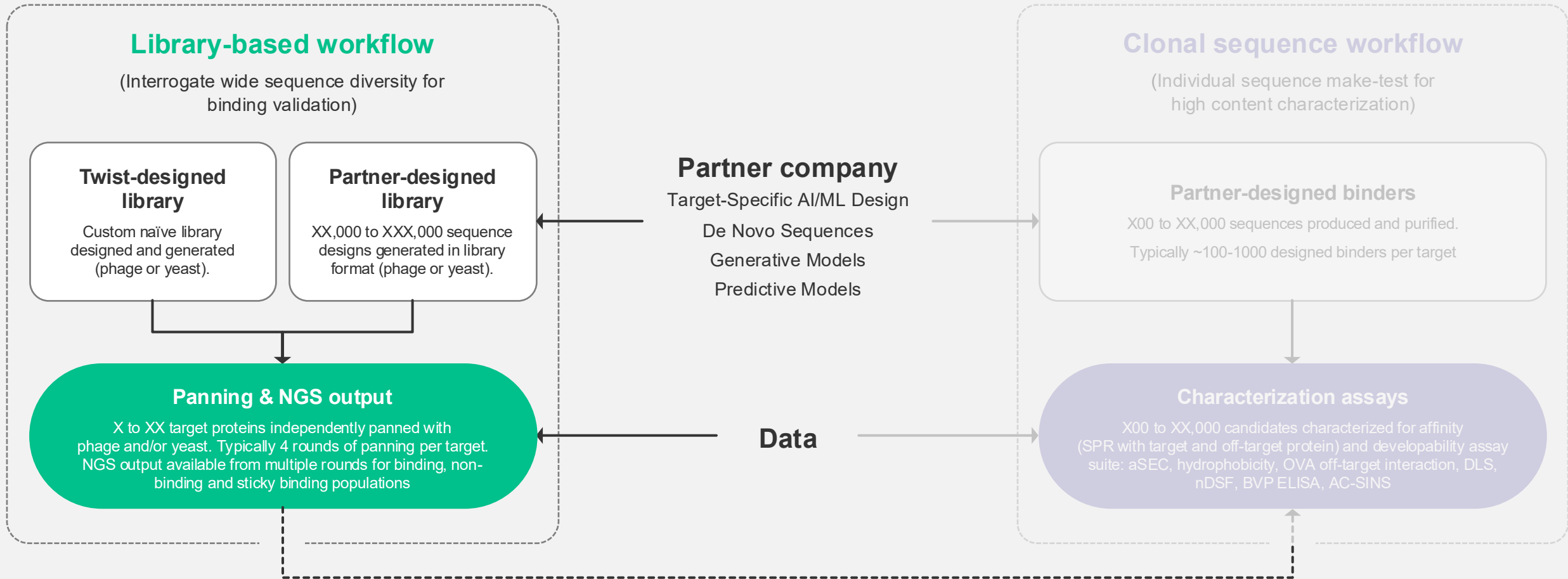
Powering Antibody Engineering and Biologics Discovery

Multiple starting and ending points available in Twist Protein Solutions workflow



Powering Antibody Engineering and Biologics Discovery

Multiple starting and ending points available in Twist Protein Solutions workflow



Baker Lab *de novo* Design of Single Domain Antibodies

Custom library production for AI/ML model training, validation and refinement of 36,000 exact sequence designs



Atomically accurate *de novo* design of single-domain antibodies

Nathaniel R. Bennett, Joseph L. Watson, Robert J. Ragotte, Andrew J. Borst, Déjansé L. See, Connor Weidle, Rishi Biswas, Ellen L. Shrock, Philip J. Y. Leung, Buwei Huang, Inna Goreshtnik, Russell Ault, Kenneth D. Carr, Benedikt Singer, Cameron Criswell, Dionne Vasquez, Mariana Garcia Sanchez, Ho Min Kim, Susana Vázquez Torres, Sidney Chan, David Baker

- AI-generated VHH designs: RFdiffusion + ProteinMPNN created 9,000 unique VHHs per target
- Fully designed CDRs: All 3 loops tailored to 4 distinct epitopes
- Twist-built libraries: 4 multiplexed gene fragment pools of 9,000 VHHs each
- Target specificity validated: Cryo-EM & SPR confirmed correct binding and folding

“Make me a VHH
against my
target”



LKVATGALNNYV...
LKVWTGALNTYV...
LKVWTGCLNTYV...
DNA
synthesis



AI



Wet Lab

Final drug

RFdiffusion
“Design
binders”

ProteinMPNN
“CDR
Sequence
Design”

RosettaFold
“Structure-
based Filtering”

4 x 9,000
variant pools
synthesized for
screening

Validated target
specific VHH

Multiplexed Gene Fragments



CDR1

CDR2

CDR3

Multiplexed Gene Fragments span full VHHs for AI-driven design

De Novo Single Domain Antibodies for Amazon's MSK Discovery Project

AI-designed nanobody candidates validated against a previously untargeted cancer antigen

Library data generation in weeks

- **>300,000** sequences identified across **12** populations from **~24M** NGS reads
- **~500** individual clones sorted for binding and non-binding populations

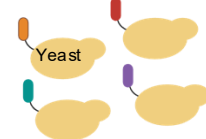


MSK Case Study
REPORT AND RESULTS



Memorial Sloan Kettering
Cancer Center

Displayed VHH



1e5 Designed Sequences
1.4e8 Transformed Yeast

Decrease in Antigen

Increase in Washes

Round 1

+ and -
Selection

Round 2

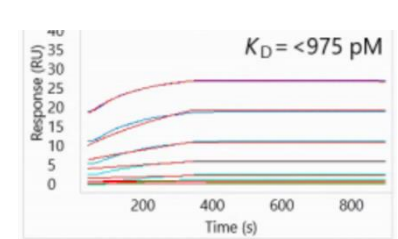
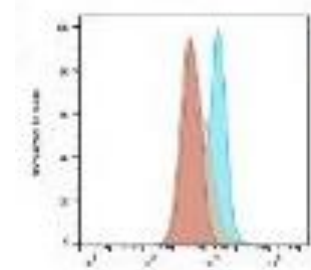
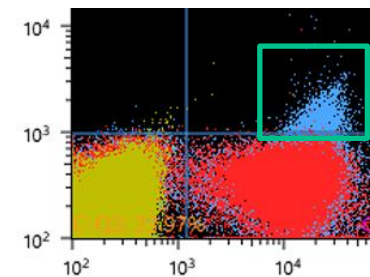
+ and -
Selection

Round 3

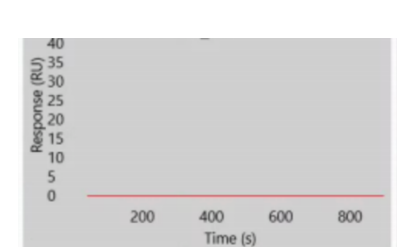
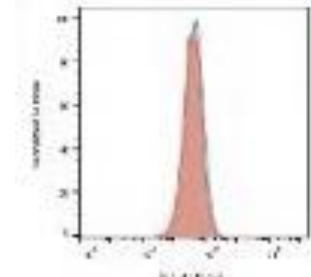
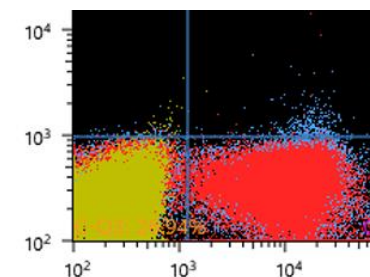
High [Target]
Sort and NGS

Low [Target]
Sort and NGS

Target

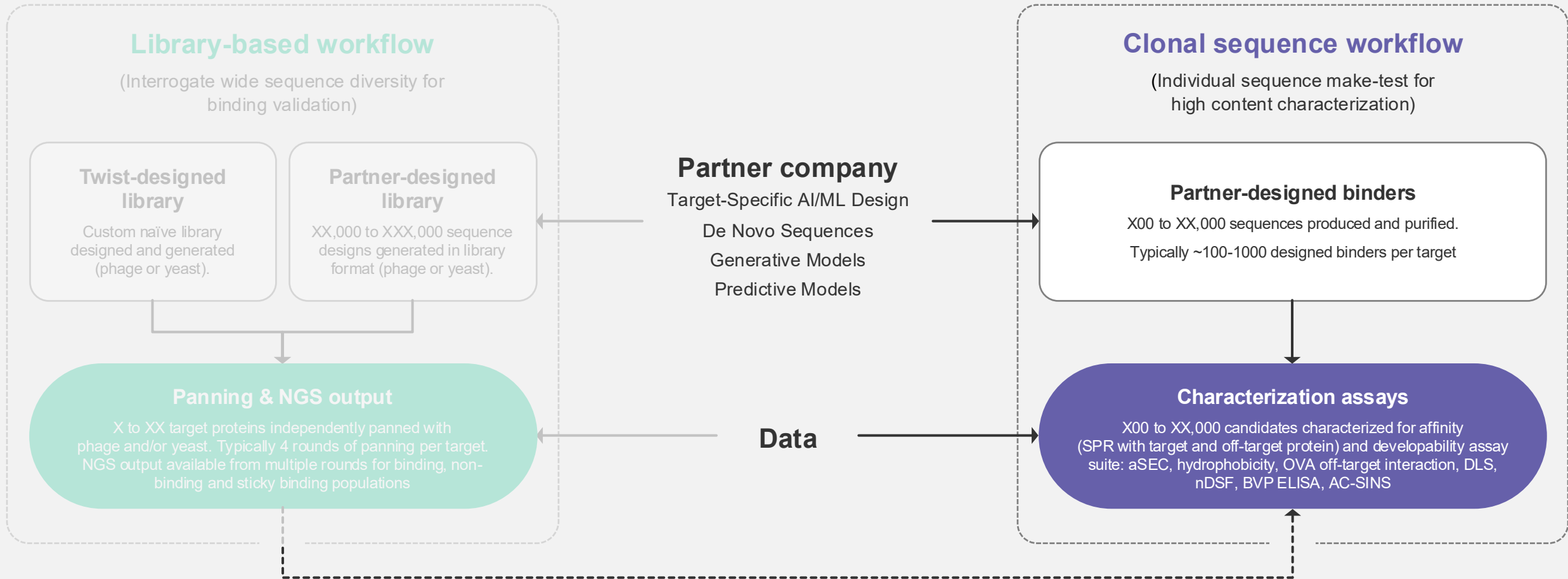


Off-target



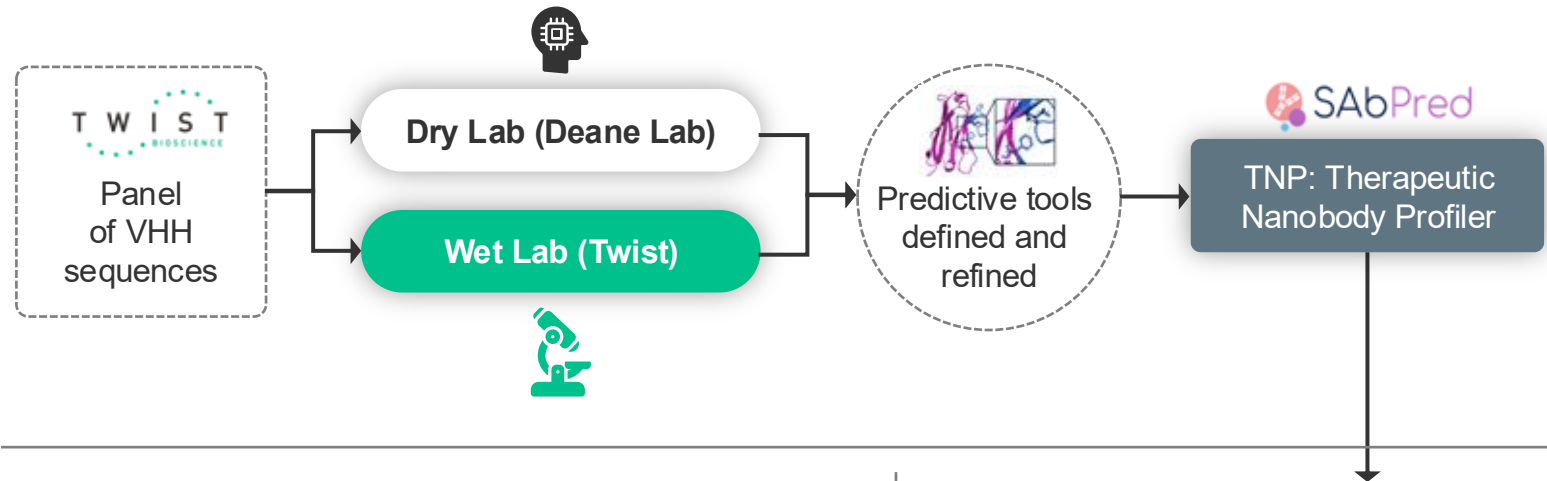
Powering Antibody Engineering and Biologics Discovery

Multiple starting and ending points available in Twist Protein Solutions workflow

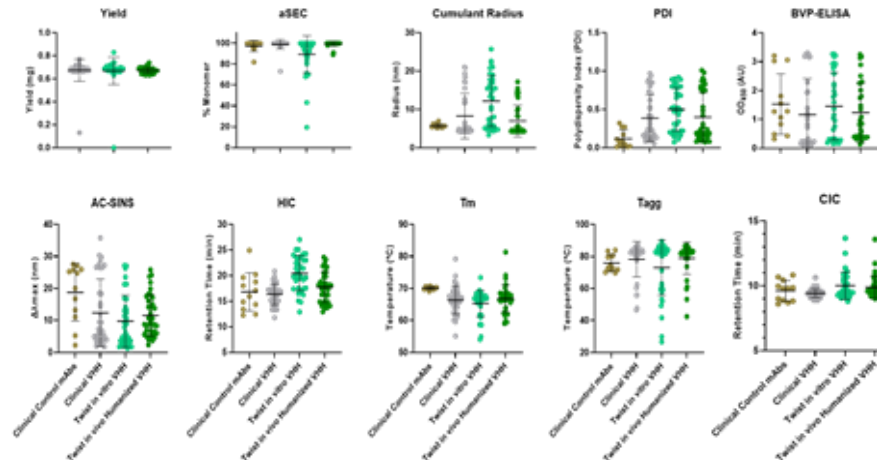


Production and Characterization of VHHs for Therapeutic Nanobody Profiler

High throughput expression and characterization for AI/ML model training, validation and refinement



High Throughput Production and Developability Assessment Assay Suite



Final Open-Source Model Developed

[nature](#) > [communications.biology](#) > [articles](#) > [article](#)

Article | [Open access](#) | Published: 31 January 2026

Characterising nanobody developability to improve therapeutic design using the Therapeutic Nanobody Profiler

[Gemma L. Gordon](#), [João Gervasio](#), [Colby Souders](#) & [Charlotte M. Deane](#) ✉

[Communications Biology](#), Article number: (2026) | [Cite this article](#)

Production and Characterization of IgG and VHH for Amazon Bio Discovery Benchmark Dataset

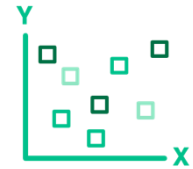
This experimental dataset provides the benchmarking foundation for evaluating AI models on antibody binding and developability prediction

Twist's experimental capabilities act as essential infrastructure for evaluating and improving AI models



5,000

sequences produced across
50 independent targets



70,000

data points generated
across 7 assays

Machine learning

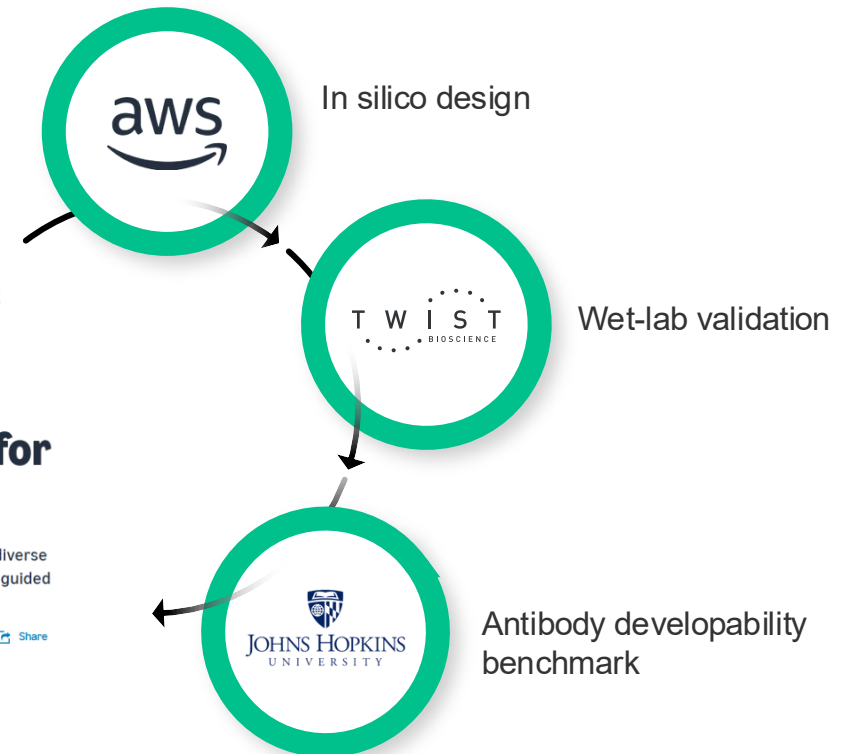
AWS and Gray Lab at Johns Hopkins Whiting School of Engineering announce groundbreaking database for AI/ML antibody design

The Antibody Developability Benchmark is powered by one of the most diverse antibody datasets, enabling transparent performance evaluation for AI-guided antibody design.

By Staff writer

April 14, 2026 | 10 min read

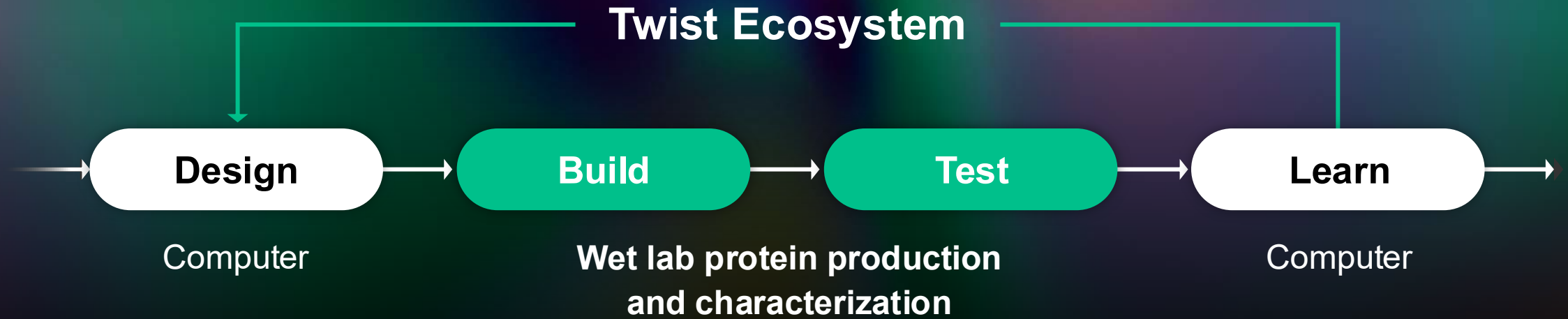
[Share](#)





The Customer Journey

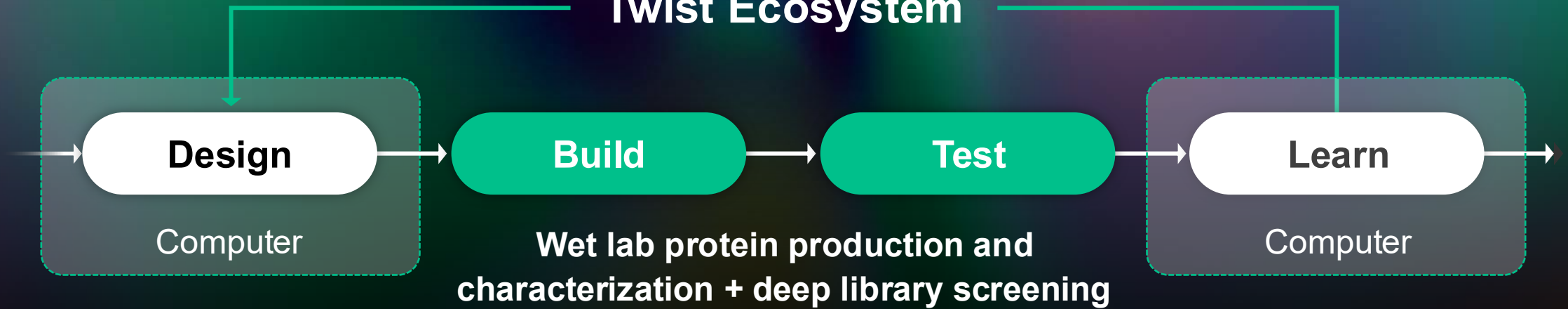
What, How and How Much: **Real Stories**



Model Building Stage

- Initial pilot study:
 - 10s-100s of sequences
- Production and characterization at Twist with 'known' sequences from Partner
- Completed within 20 days for \$10k-\$100k

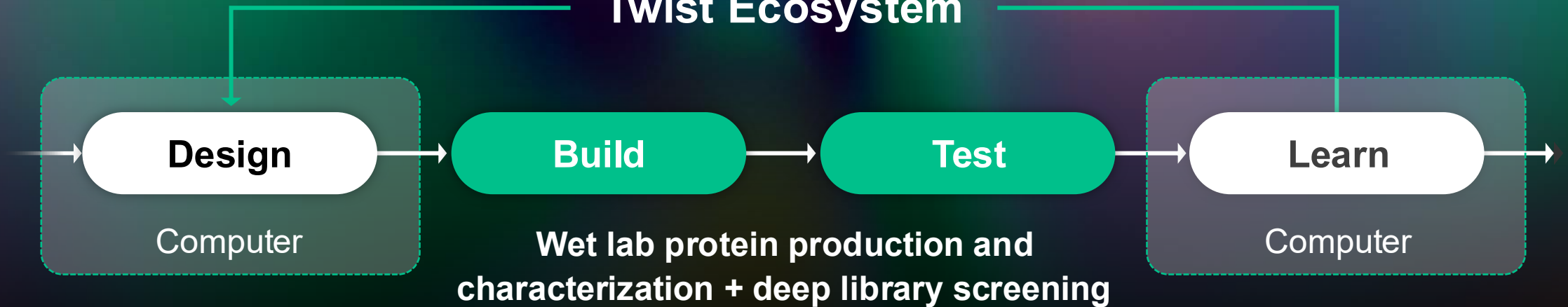
Twist Ecosystem



Foundational Model Required

- 10,000s to 100,000s of sequence designs for each of 5 to 50 independent targets
- Twist builds large sequence library
- Twist screens libraries to generate binding data and NGS sequence datasets
- Completed in weeks for \$100,000s to \$1Ms

Twist Ecosystem

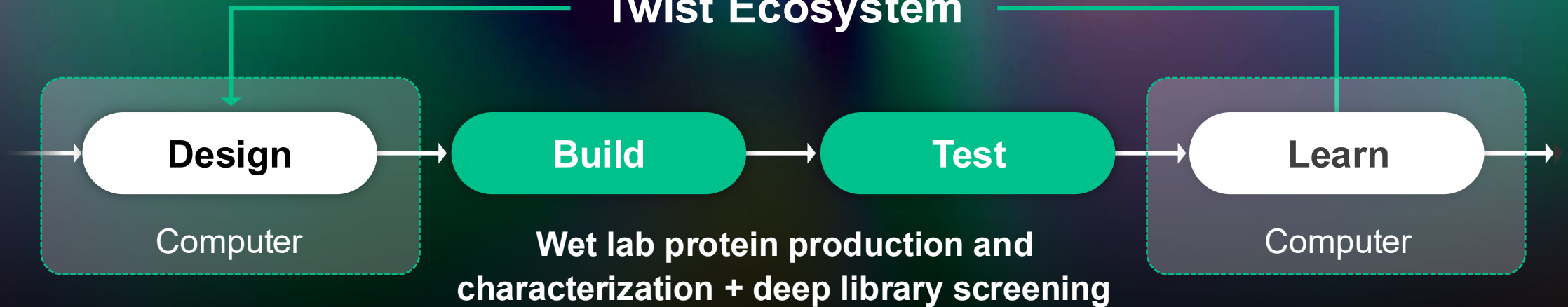


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- Completed in weeks for \$100,000s to \$1Ms

- Validation data:
 - 1,000s of new sequence designs from Partner
- Produced and characterized at Twist
- Completed in 20-30 days for <\$1M

Twist Ecosystem



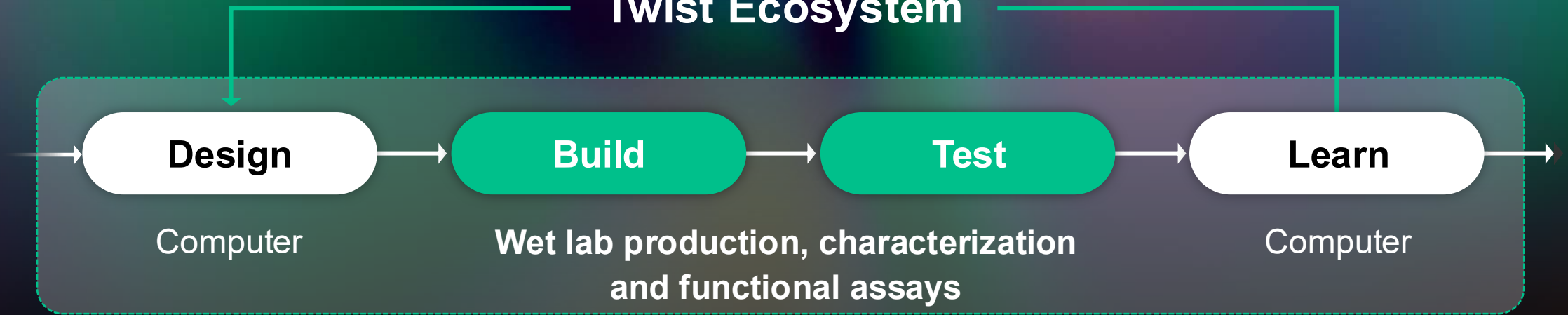
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- Completed in weeks for \$100,000s to \$1Ms

- Validation data:
 - 1,000s of new sequence designs from Partner
- Produced and characterized at Twist
- Completed in 20-30 days for <\$1M

- Two to five additional rounds
 - Fine-tune training for multi-property criteria
- 1,000s of new sequence designs from Partner based on learning from previous rounds
- Deploy model for therapeutic discovery

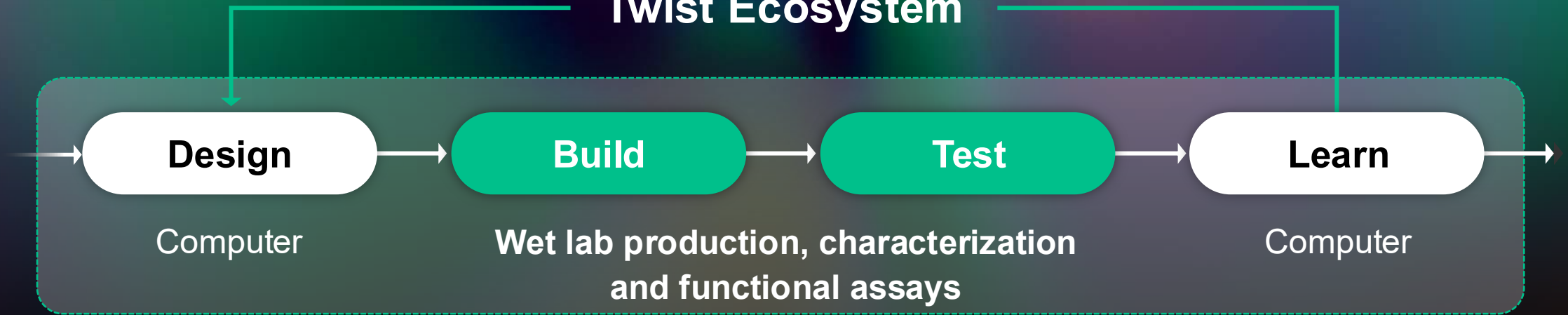
Twist Ecosystem



AI-Based Therapeutic Discovery

- Established, fine-tuned foundational models generate 100s to 1000s of candidates
- Twist produces and performs initial basic characterization
- Leads proceed to advanced characterization assays
- Completed in <30 days for <\$1M

Twist Ecosystem



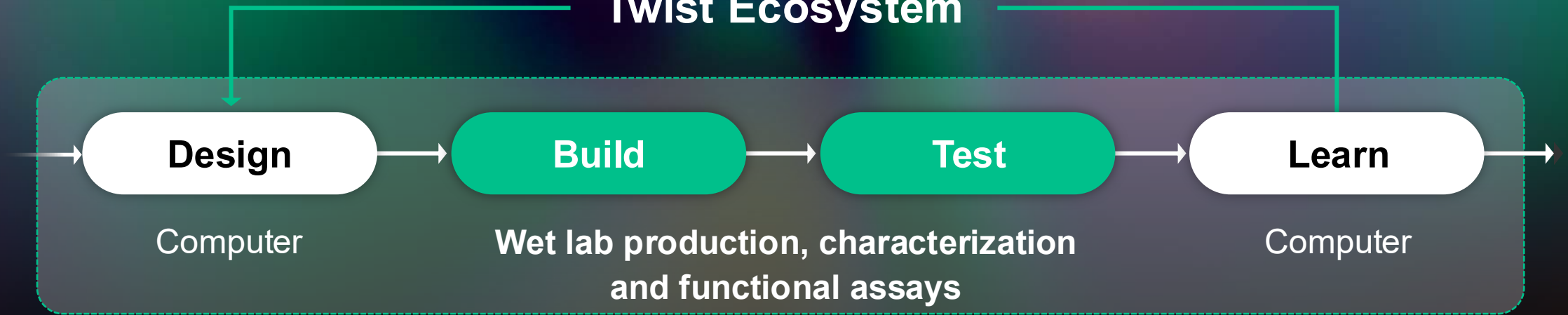
AI-Based Therapeutic Discovery

- Established, fine-tuned foundational models generate 100s to 1000s of candidates
- Twist produces and performs initial basic characterization
- Leads proceed to advanced characterization assays
- Completed in <30 days for <\$1M



- Top candidates fed into Optimization Models
- 100s to 1000s of optimized designs produced and characterized at Twist
- Leads proceed to advanced characterization assays
- Completed in <30 days for <\$1M

Twist Ecosystem



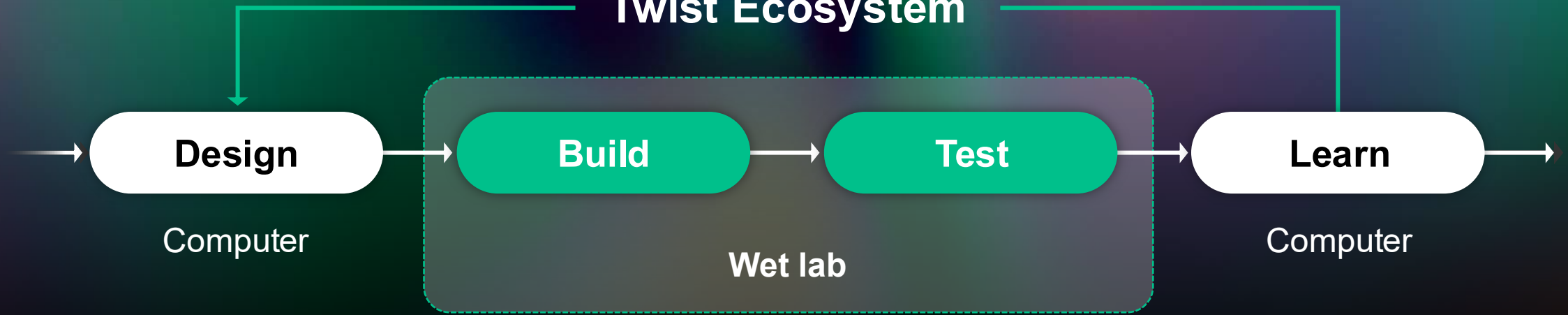
AI-Based Therapeutic Discovery

- Established, fine-tuned foundational models generate 100s to 1000s of candidates
- Twist produces and performs initial basic characterization
- Leads proceed to advanced characterization assays
- Completed in <30 days for <\$1M

- Top candidates fed into Optimization Models
- 100s to 1000s of optimized designs produced and characterized at Twist
- Leads proceed to advanced characterization assays
- Completed in <30 days for <\$1M

- Partner nominates lead(s) for further preclinical testing in efficacy and tox models at CDMO
- Candidate enters Partner's therapeutic pipeline

Twist Ecosystem



200k+

Proteins Expressed

130k+

Antibodies Assayed

7M+

Data Points Generated

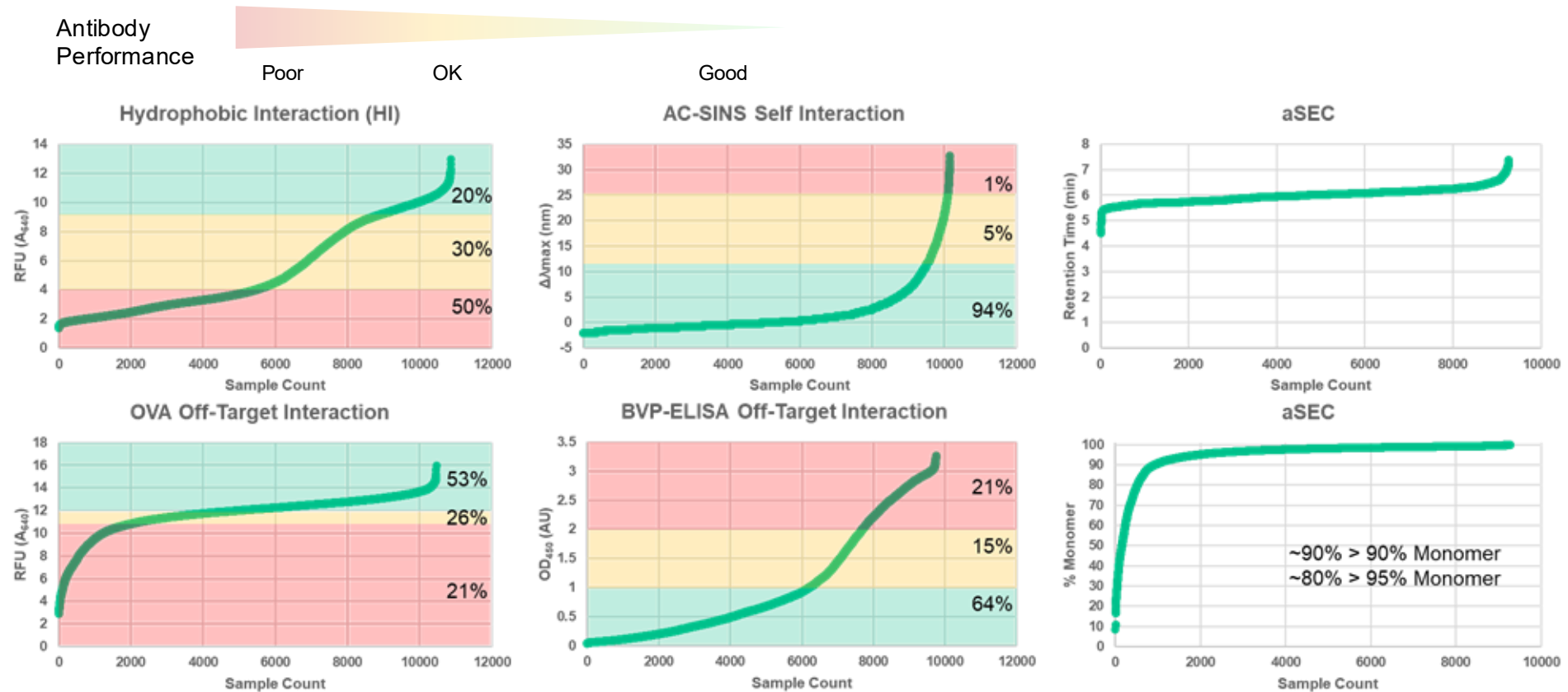
Dozens

Customers Served

As of March 5, 2026

Large Scale, High Content Data Generation: 20 days

10,000s of datapoints for metadata capture in high-content developability assays for model building



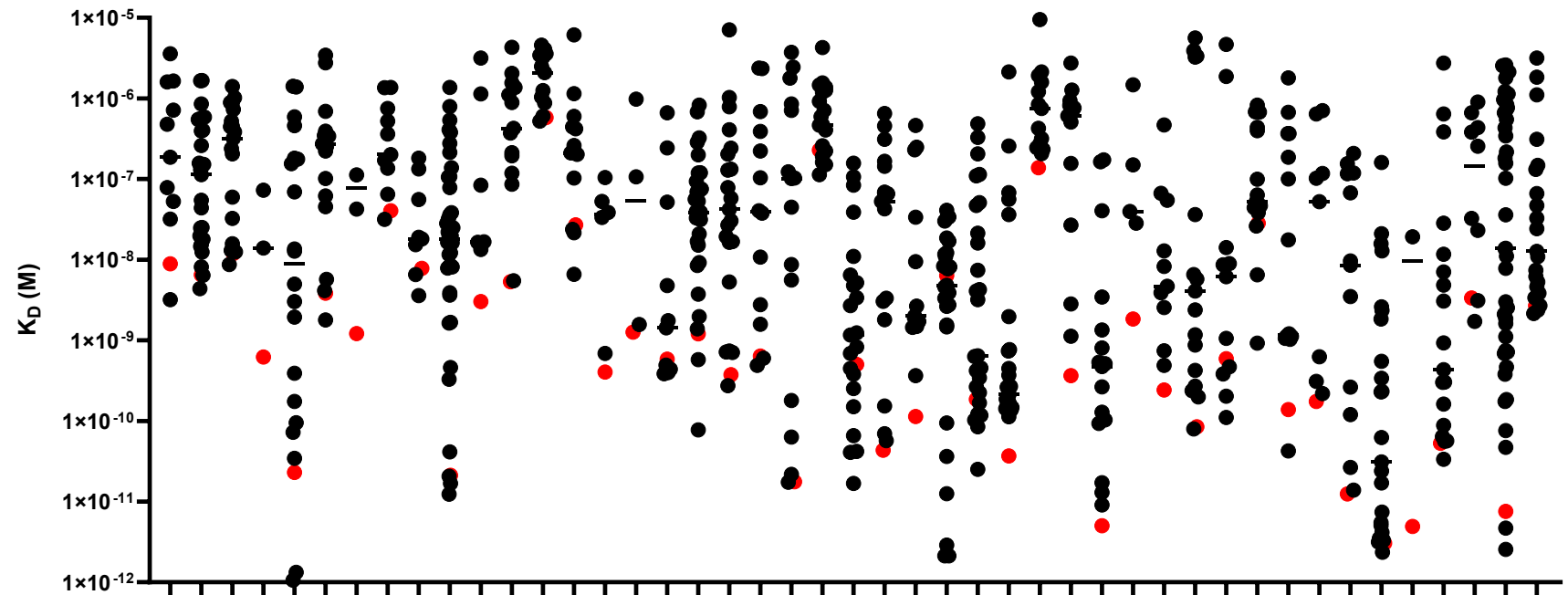
Large Scale, High Content Data Generation: Optimization

10,000s of datapoints for metadata capture in binding kinetics assays for model validation and candidate optimization

Binding kinetics: ~5000 sequence designs based on 50 different independent targets assessed in multipoint SPR on Carterra LSA-XT

Binders in μM to pM range; compared vs. benchmark sequence (red).

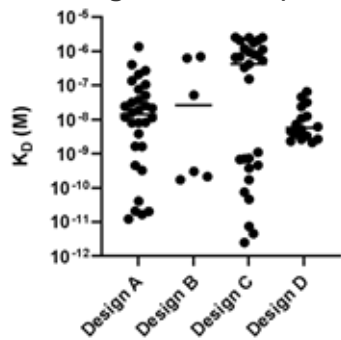
On-Target Kinetics (SPR)



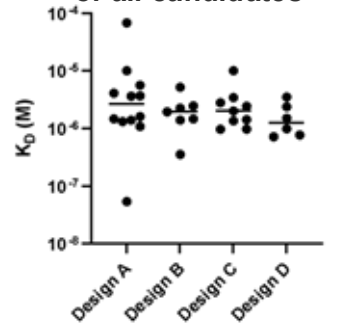
Large Scale, High Content Data Generation: Lead Candidate Selection

Multi-parameter optimization to select lead therapeutic candidates

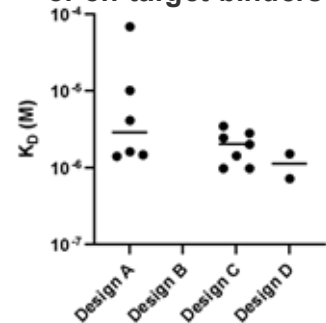
On-target kinetics (SPR)



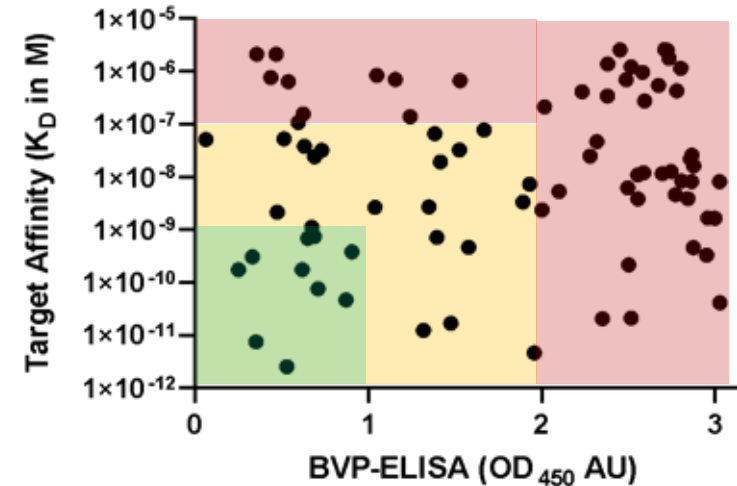
Off-target kinetics (SPR)
of all candidates



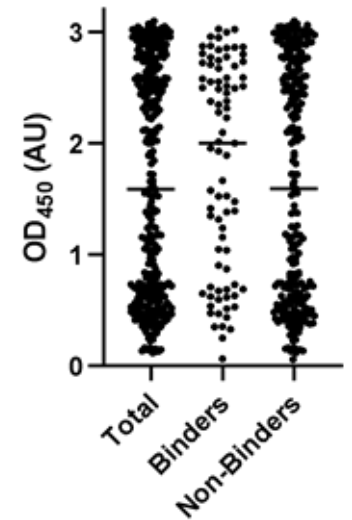
Off-target kinetics (SPR)
of on-target binders



On-target kinetics (SPR) vs. BVP-ELISA



BVP-ELISA



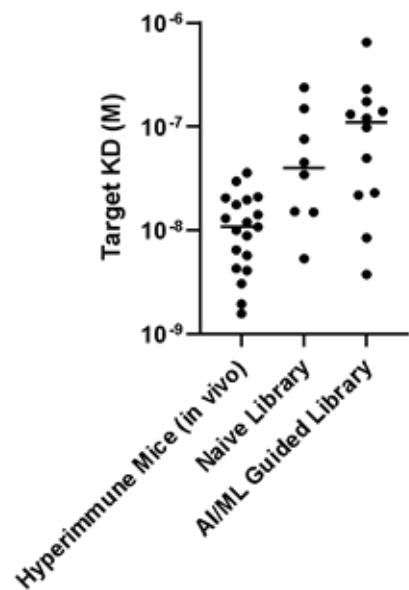
Generative Protein Design Guided Library for Therapeutic Candidate Selection of Challenging Targets

End-to-End: AI library design, build and panning for difficult cell surface target

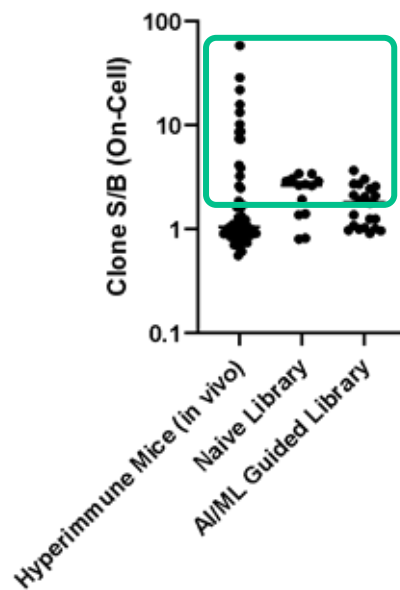
Results:

- Single- and double-digit nM binders obtained from three discovery methods (*in vivo*, naïve *in vitro* library and AI/ML guided *in vitro* library)
- On-cell binding validated, and top candidates progressed to functional validation in downstream signaling assay
- Unique candidates from each method progressed as project leads

Target A affinity

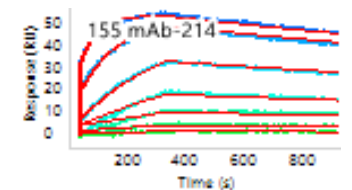


Target A on-cell binding validation

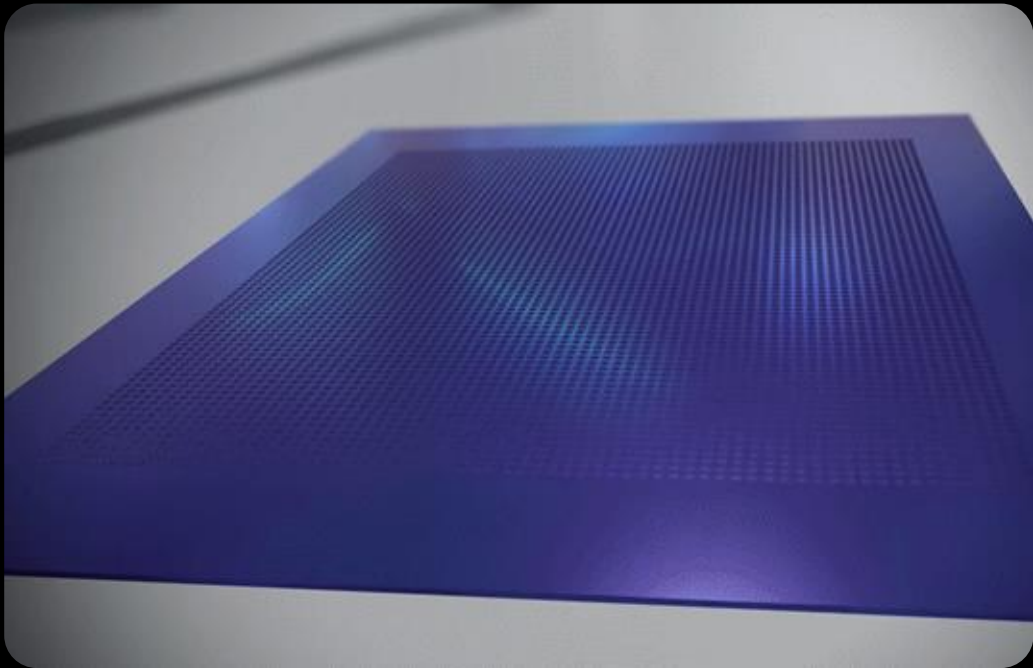


Source	Functional IC50 (nM)
Hyperimmune Mice (in vivo)	1.1
	1.6
	0.7
	15.0
Naïve Library	0.8
	3.3
AI/ML Guided Library	0.03
	28.7
Benchmark A	41.8
Benchmark B	3.9

Multiple candidates from each discovery technique with better activity as compared to Benchmark competitors

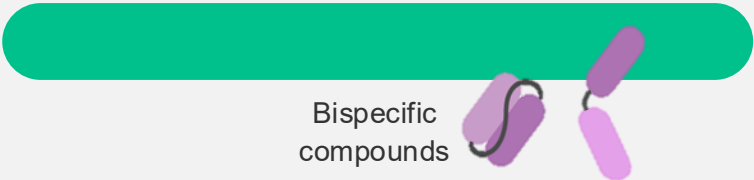


The Future is Written on the Twist Platform



Gene Pools

(Early Access)
Paired Heavy+Light Chain Libraries (scFV); Precisely Paired Bispecific VHHs
1800 bp



Multiplexed Gene Fragments

VH, VL, VHH and Miniproteins
500 bp



Twist Oligos

Paired or Unpaired CDRs
300 nts



350 nts



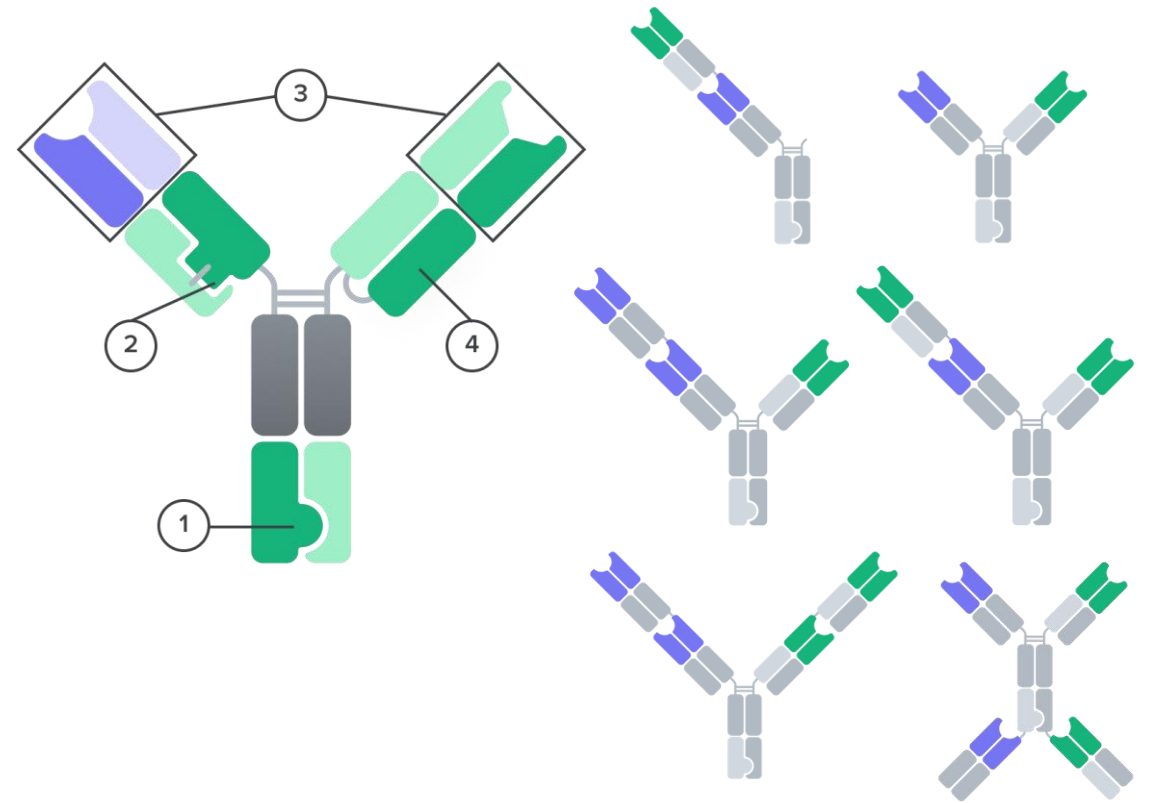
170 nts



A Unique Bispecific Platform to Standardize “Hardware” into AI “Software”

CMC driven innovation

- ① **Fc Region: Clinically Validated Knobs-into-Holes**
 - Drives heavy chain heterodimerization
- ② **Fab Arm: Proprietary CH3 Domains to Drive Heterodimerization**
 - Substitutes for CH1/CL in one Fab Arm
 - Solves light chain mispairing issue
 - Novel CH3 mutations, without knobs-into-holes or charge pairs
 - pl asymmetry streamlines polishing steps
- ③ **Heavy & Light Chains: Proprietary Symmetrical Inversions**
 - Enhances expression yield and stability
 - Facilitates one-step purification
 - Compatible with a wide variety of variable domain sources
- ④ **Sole CH1 Domain: Allows a Level of Purification Beyond Protein A/IEX**
 - Facilitates one-step purification with anti-CH1 resins
 - Simplifies in-format discovery
 - Removes homodimers and other impurities in one pass



- Data generation: breaking heterogeneity bottleneck
- Plug-and-play formats for Lab-in-the-loop

One Platform, Many Customized Solutions

Meeting customers where they are, powering growth across expanding platforms

How we win



Operational excellence



NPI machine



Commercial execution

T W I S T
BIOSCIENCE

**Differentiated
Silicon Platform
Speed and Scale**



**AI-enabled antibody
discovery workflows**

AI-ready wet-lab at scale



**Molecular residual
disease**

Personalized diagnostic research
at scale



**Enzyme-engineered
NGS**

Better performance,
integrated workflow



**Nucleic acid
therapeutics**

Next growth frontier

Twist culture

DNA Synthesis Platform Drives Scale, Speed for AI-Enabled Discovery

200,000+

Proteins expressed

130,000+

Antibodies assayed

7 million

Data points for AI training

15 days

To Deliver AI-ready data

6,000+

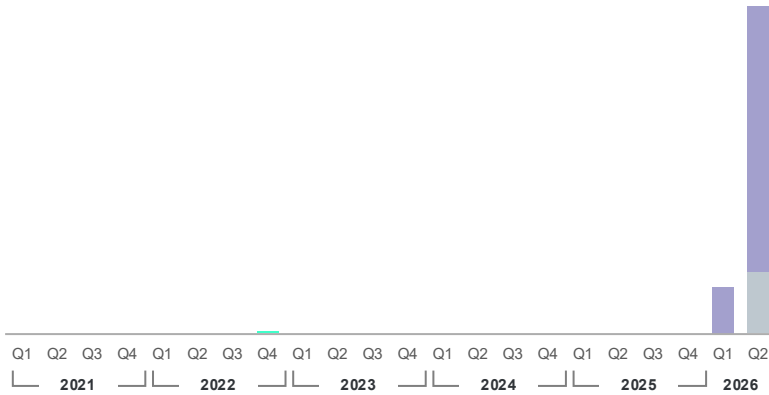
IgGs per week

445+

Partner organizations

As of March 5, 2026

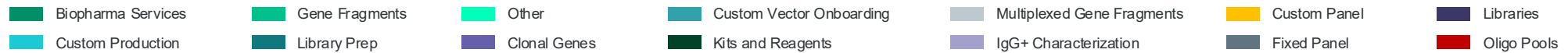
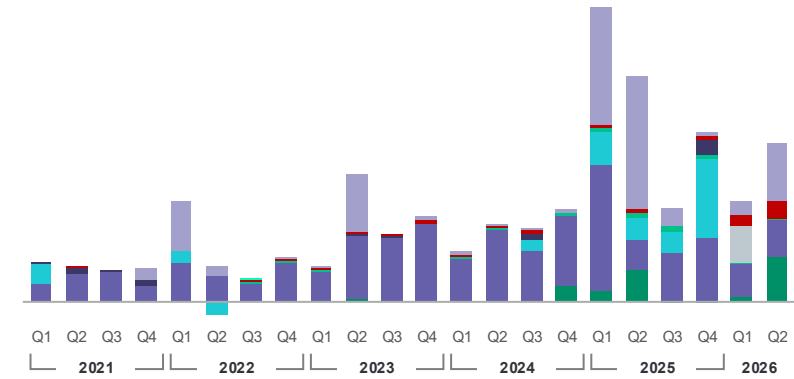
Frontier AI Lab



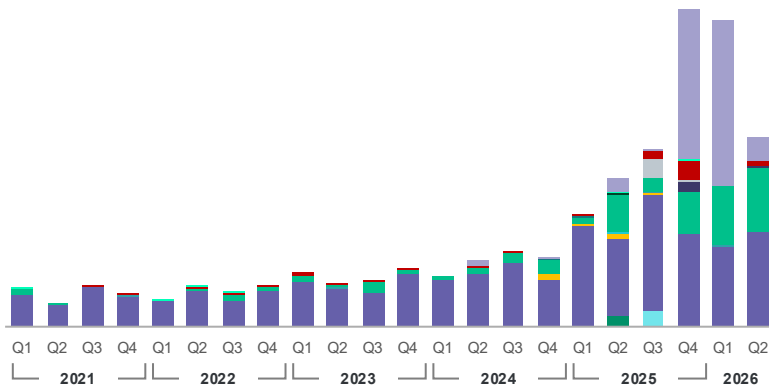
AI Enabled Discovery

Different Approach
for Every Customer
All Adding IgG/Characterization

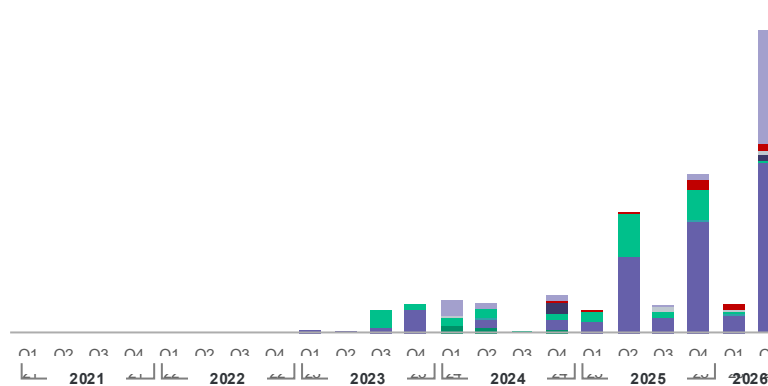
Large Pharma



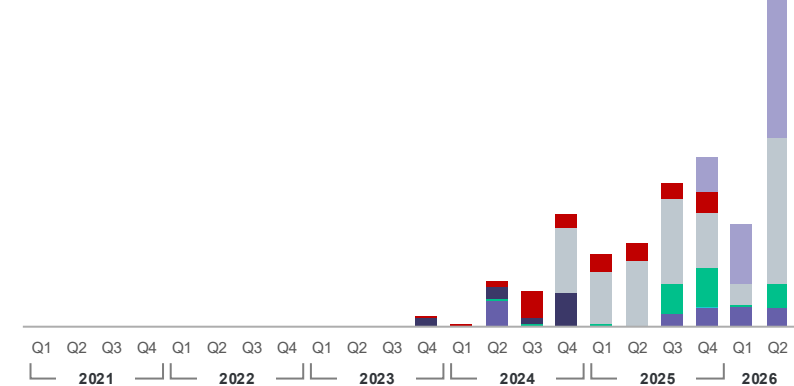
Large Pharma



AI-Native Biotech



Dry Lab Biotech



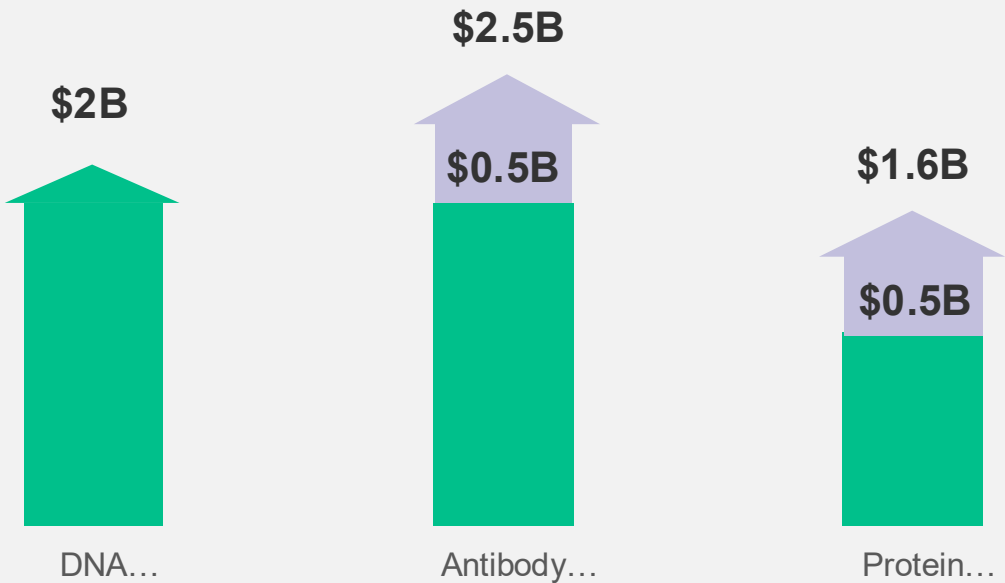
* Revenue charts not presented on uniform scale

Future Market Opportunity for AI-Enabled Discovery Adds \$1B in 2030

\$7B+ SAM*

- AI-enabled Drug Discovery
- DNA Synthesis and Protein Solutions

\$180B+ TAM



AI-Enabled Drug Discovery
Estimate includes efforts to **build** foundational models and **use** of those models for antibody discovery.

Assumptions include:

- **No dominant model** for either binding prediction or other characterization – iteration continues
- **Scope** of preclinical development work using models continues to expand
- **For Twist**, On track for triple digit order growth in FY26 vs FY25

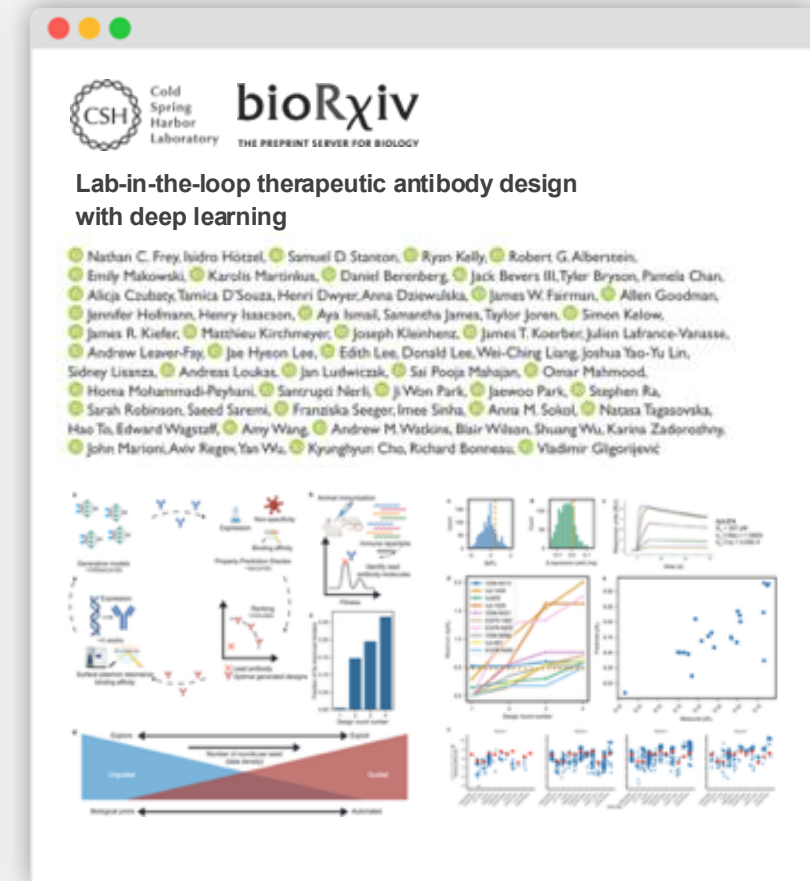
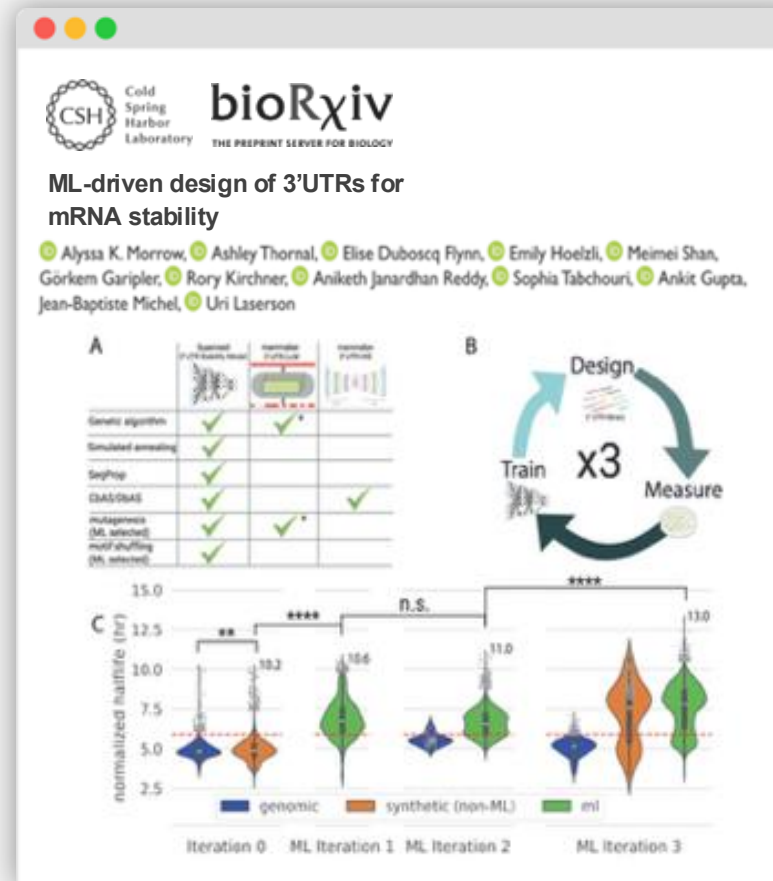
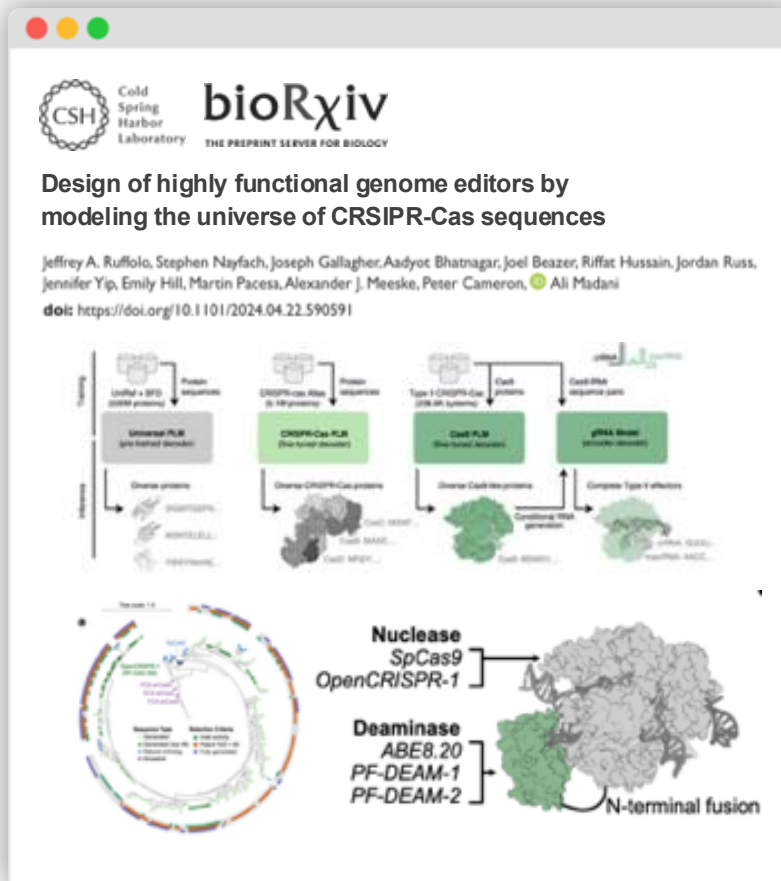
*BCC reports, DeciBio, Grand View, Antibodies – recombinant protein market stat; Twist internal estimates

Beyond Protein, AI Driving Additional DNA-Intensive Applications Platform Enables Broad Set of Applications Including

Build an AI generated
CRISPR nuclease

Train a model to identify optimal
3'UTRs for **mRNA** expression

Develop lab-in-the-loop **protein**
design and optimization workflow



Agenda

- Welcome
 - Tour
 - DSPS Strategy Session
 - Fireside Chat with Dr. Frances Arnold
 - **Customer Presentations**
-

Lunch

- NGS Strategy Session
- Customer Presentations
- Financial Overview
- Culture
- Q&A

Chai Discovery



Thank you

ELSIE BIOTECHNOLOGIES / GSK

**Enhancing Oligonucleotide Screening Efficiency
with DNA Encoded Library Technology**

Dillon Flood

Co-Founder and Scientific Director

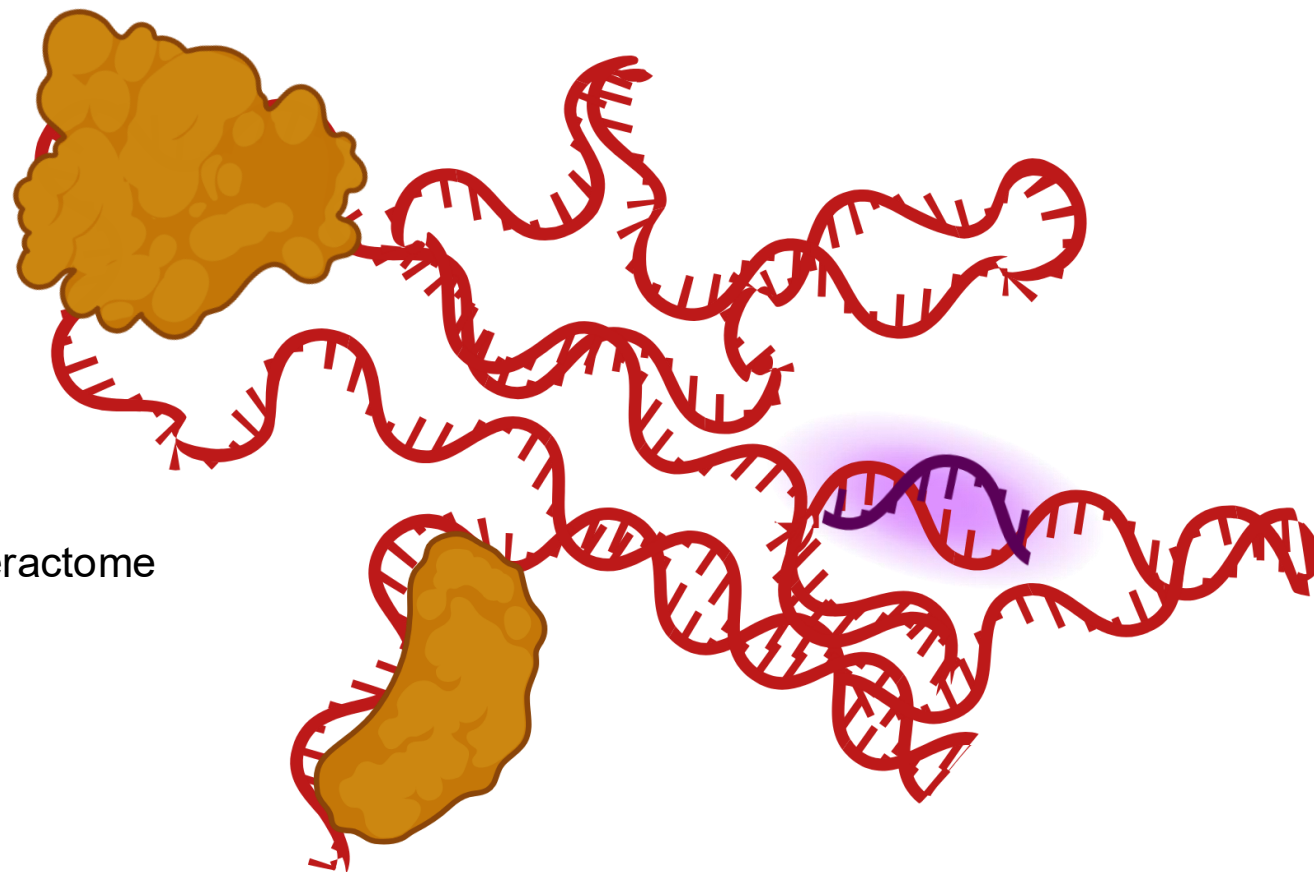
Difficulties with oligo sequence definition

Tx sequence prediction challenges

- RNA structure is dynamic
- Long range structure prediction limited
- Undefined protein interactome

ROSALIND answers:

- Empirically assay vast sequence space
- Recapitulate native target structure and protein interactome
- Discover improved leads



Pooled screening eliminates the oligo design question

Traditional screening = individually testing oligos

Sequence



Sequence = (n)
1,000's

Modifications



Modifications (m) &
patterns (g & l)
10's & 10,000's

Linkage ID & stereochem



Linkage ID &
stereochem (2l-1)
10's & 10,000's

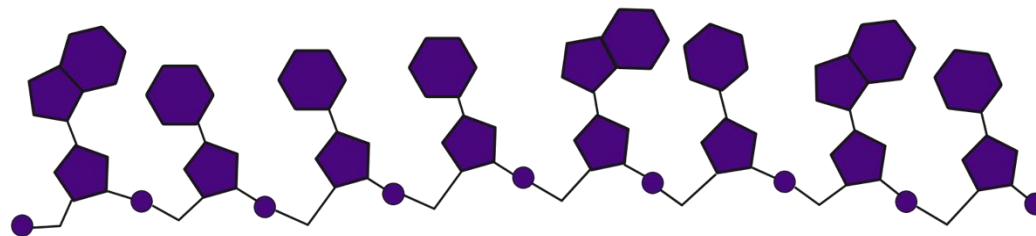
Total chemical diversity:

$$\sum_{l=l_{min}}^{l_{max}} (n - l + 1) 2^{l-1} m^{l-g} = 10^{12} \text{ possible combinations}$$

ROSALIND: DNA-encoded discovery engine

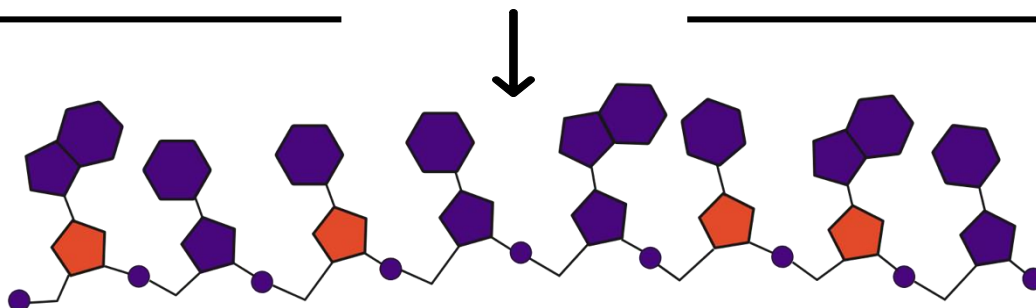
Screening oligos in a pooled format

Sequence
Gen 1 Leads



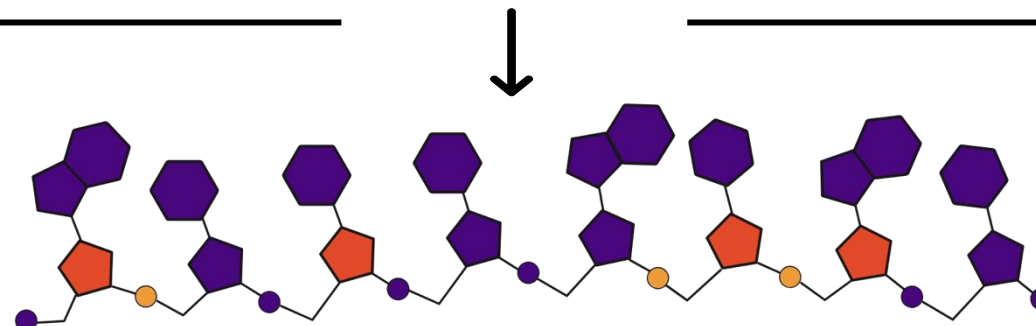
10K-100K
Oligos screened to define
activity & selectivity

Modification pattern
Gen 2 Leads



10K-50K
Oligos screened to define
toxicity & PK/PD

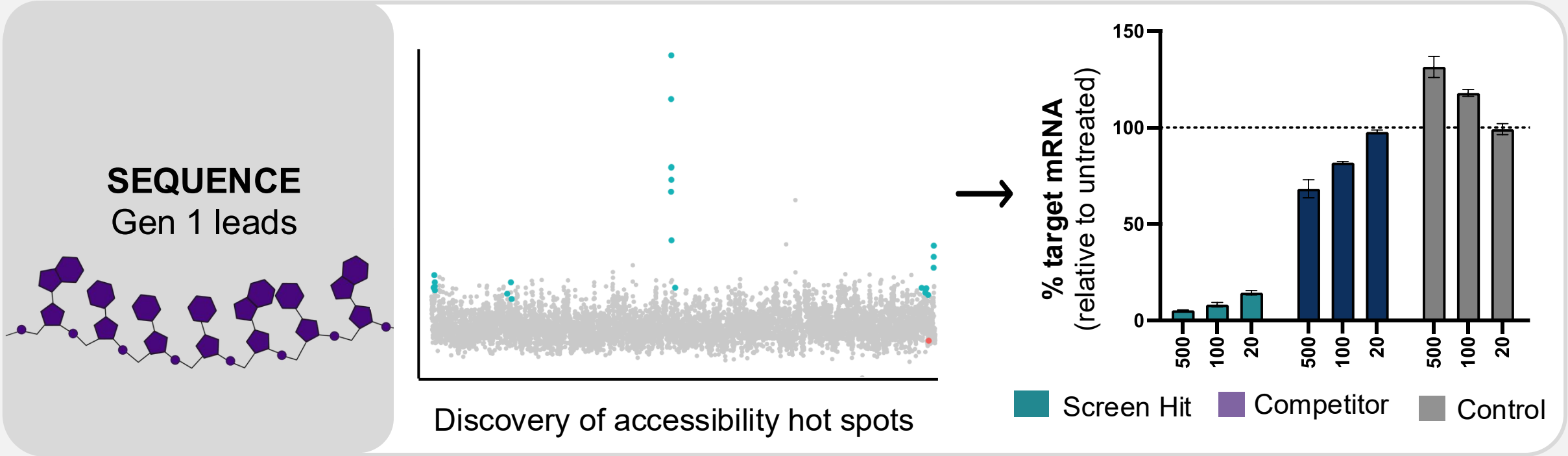
Linkage and stereochem
Gen 3 Leads



100-1000's
Oligos screened allow fine-
tuning of drug properties

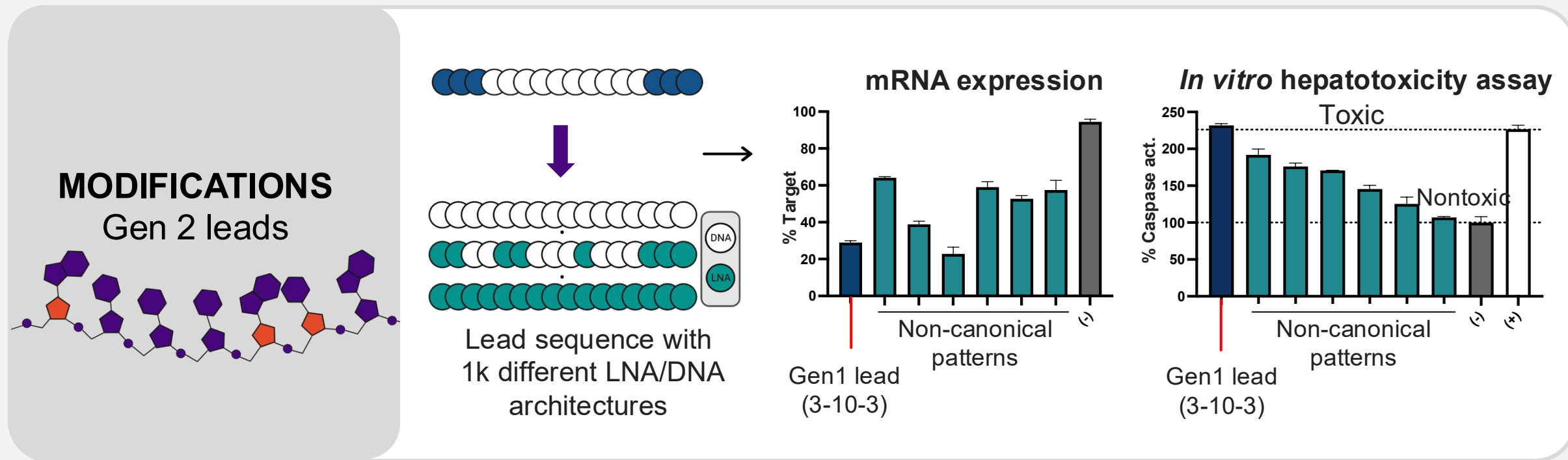
Accessibility drives activity

Sequence optimized Gen1 ASOs demonstrate superior activity to clinical phase molecules



Patterns impact properties

Gen 2 ASOs with non-canonical chemical architectures display decreased toxicity

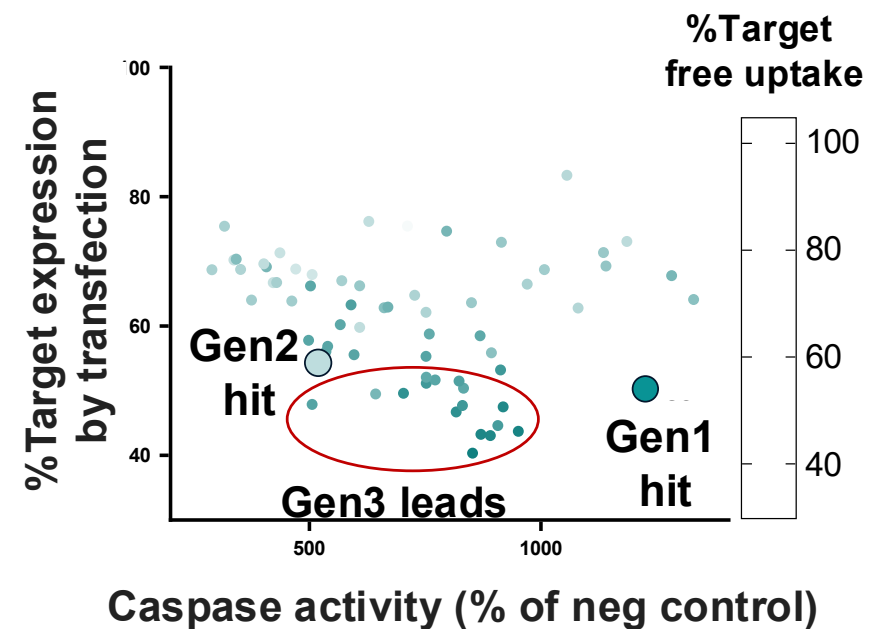
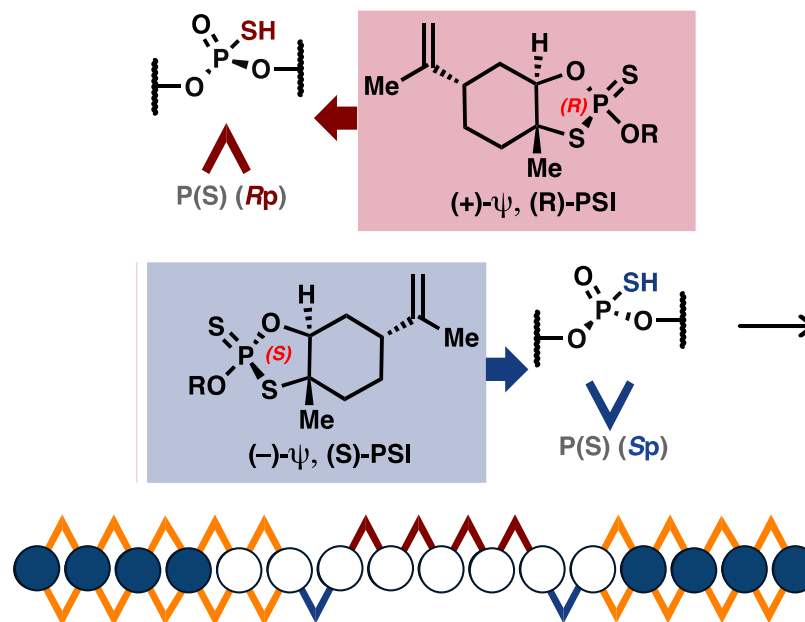
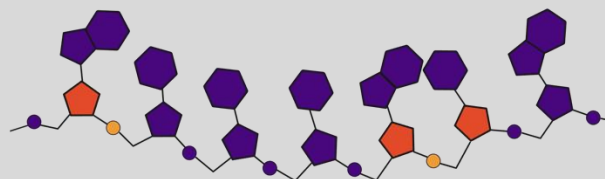


Chemistry imparts control

Gen 3 ASOs with controlled stereochemistry

LINKAGE & STEREOCHEM

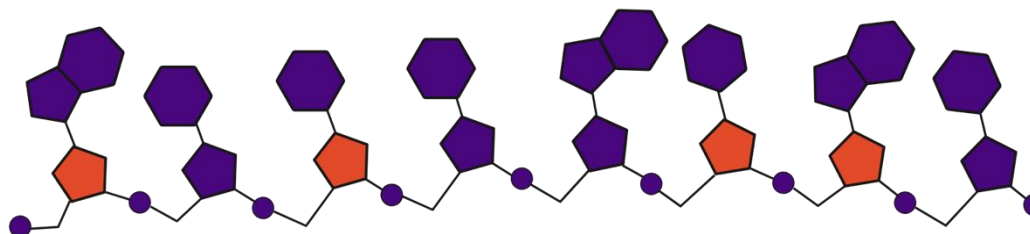
Gen 3 leads



Chemistry development was needed to enable innovation

Screening oligos in a pooled format require chemistry optimization

Modification pattern
Gen 2 Leads

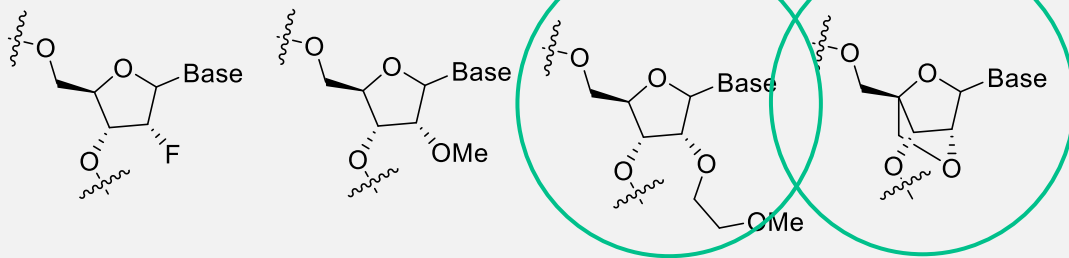


10K-50K

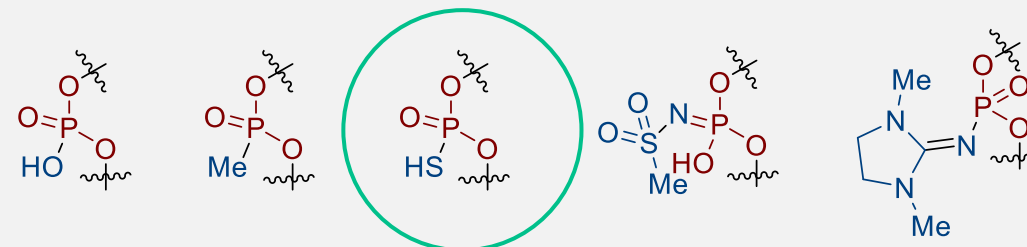
Oligos screened to define toxicity & PK/PD



Modified sugars

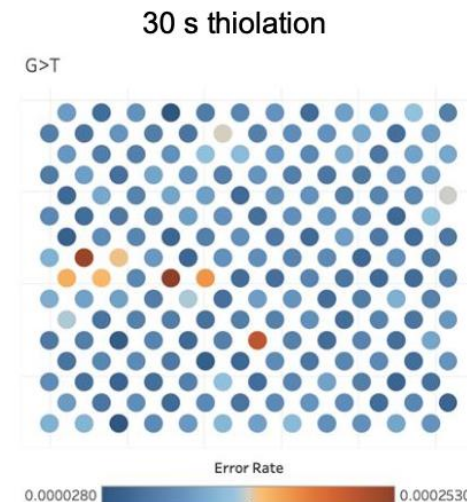
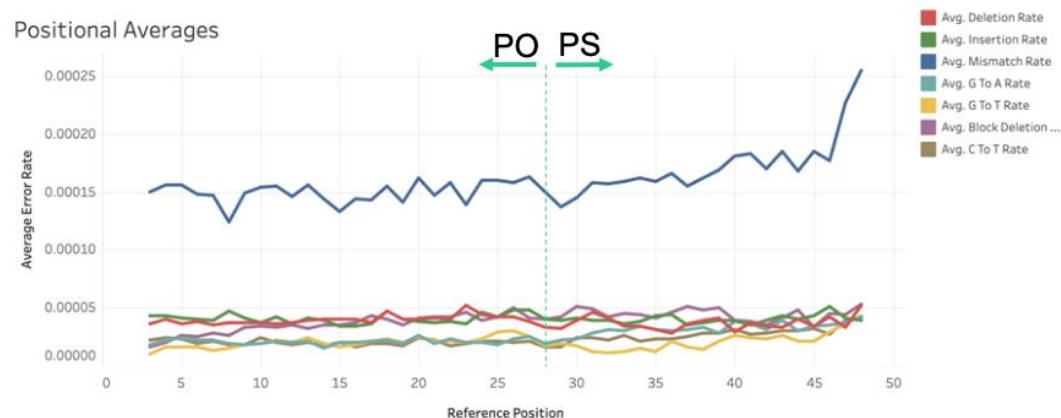


Modified phosphodiester mimics

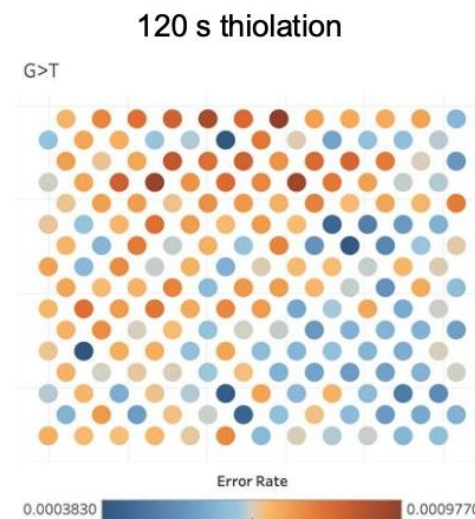
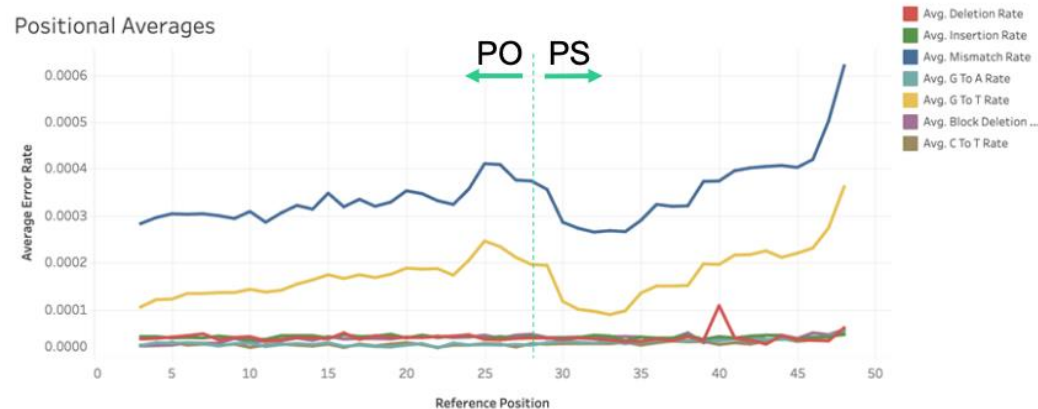


Chemistry collaboration enabled high throughput screening

30 second thiolation:
Error rate 1 in 3200



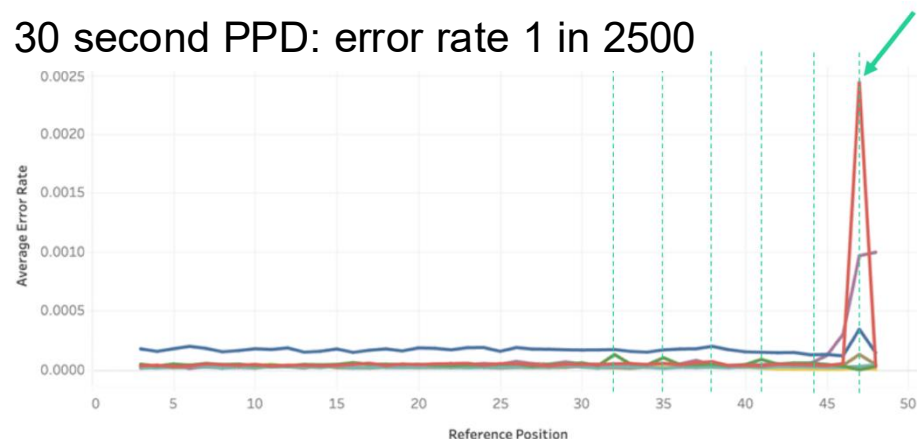
120 second thiolation:
Error rate 1 in 2500



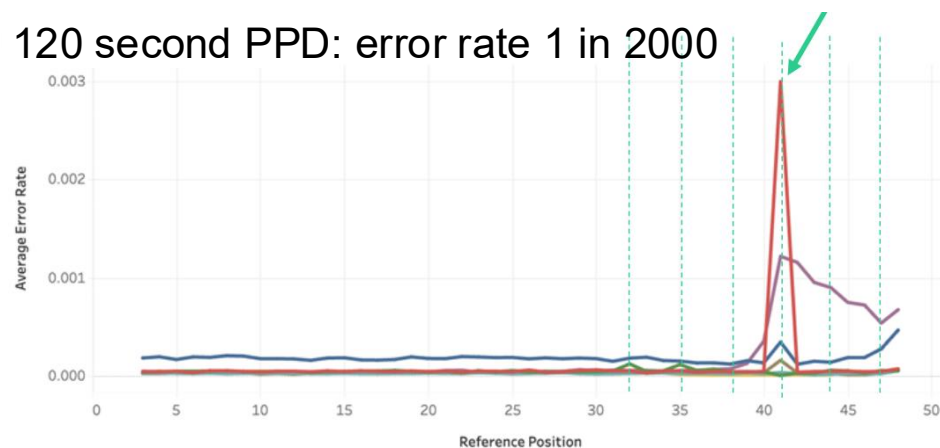
Chemistry collaboration enabled high throughput screening

MOE incorporation

30 second PPD: error rate 1 in 2500

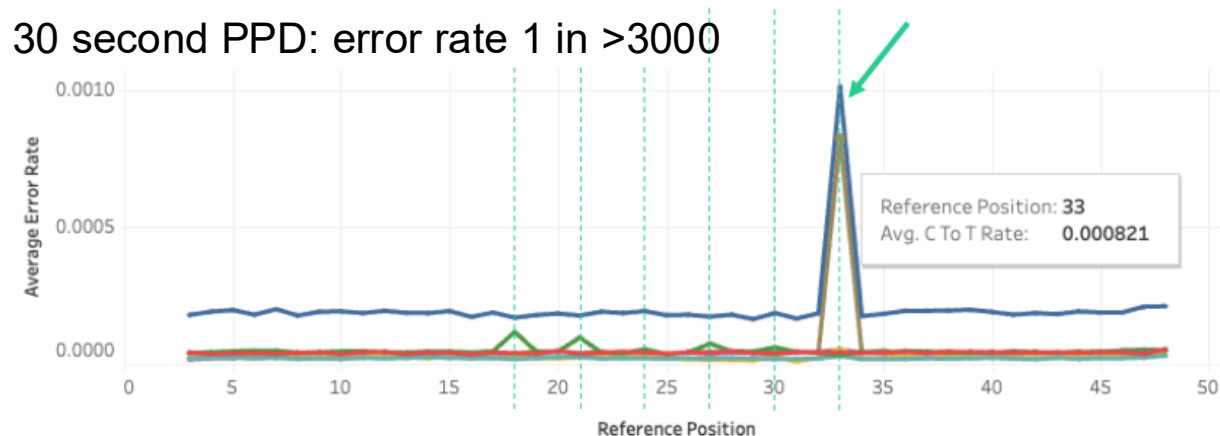


120 second PPD: error rate 1 in 2000

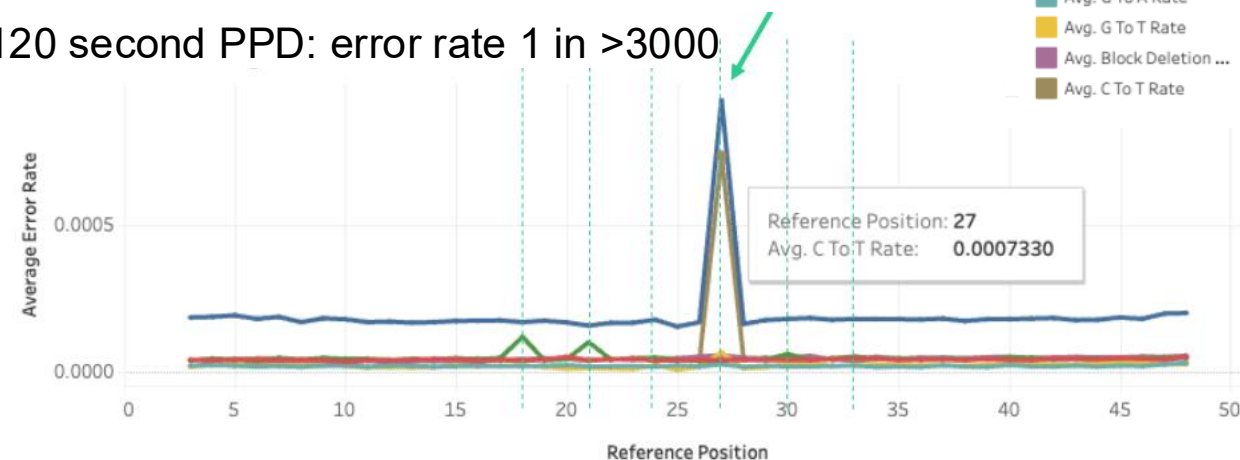


LNA incorporation

30 second PPD: error rate 1 in >3000



120 second PPD: error rate 1 in >3000



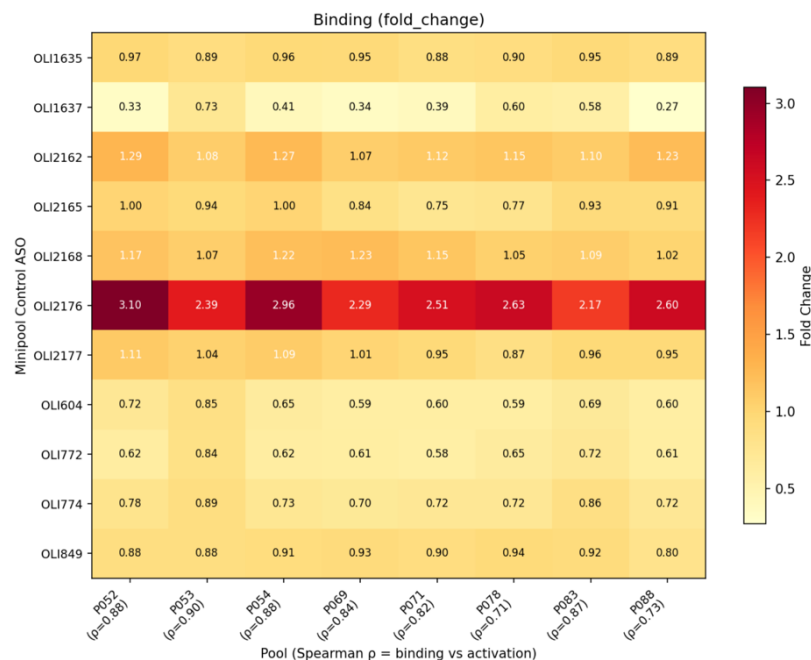
Selections at scale enable modeling and data asset creation

Gen 2 ROSALIND and in vitro datasets

100,000+ unique datapoints per assay

Spike-in controls allow QC validation

Data pre-processing for unified input



Model development and evaluation

Parameter definition (205)

Nucleotide one-hot

Mods: type/pattern/count

Structural: mod density

Sequence: length/GC

Di/trinucleotide pairs

Target information

Binding model

Gradient Boosting Regressor

Random Forest Classifier

Binding Score (continuous) + Good/Bad (binary)

Activation model (transfer learning)

Gradient Boosting Regressor

Random Forest Classifier

Activation % + Good/Bad

Validation and deployment

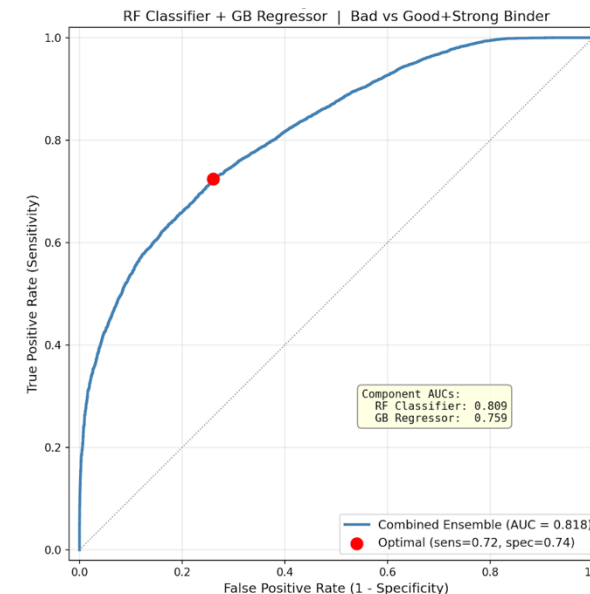
Primary Goal

Good Binder/
Good Activator
TOXIC

Good Binder/
Bad Activator
IN VITRO

Bad Binder/
Good Activator
IN VITRO

Bad Binder/
Bad Activator
PROGRESS



Acknowledgements



Amanda McCrae
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Dianne Agarwal
LJ Lim



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Chloe Jones
Jack Brown
Rajeev Chorghade
Chris Dimitri
Daisy Flemming

Patrick Neal
Kristina Gans
Robert Hale
Angelina Heyler
Boyko Kakaradov
Amy Lancaster



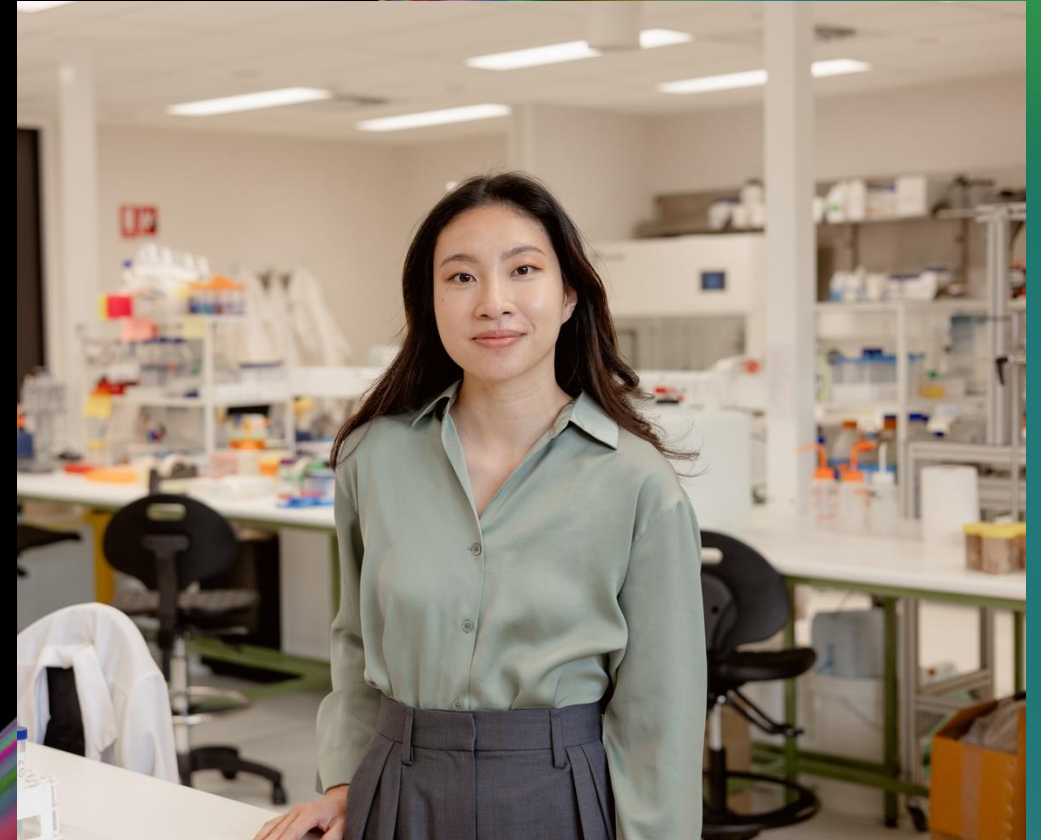
Thank you

SAMSARA ECO

Dr Vanessa Vongsouthi

Research Founder

Head of Bioengineering and Discovery Research



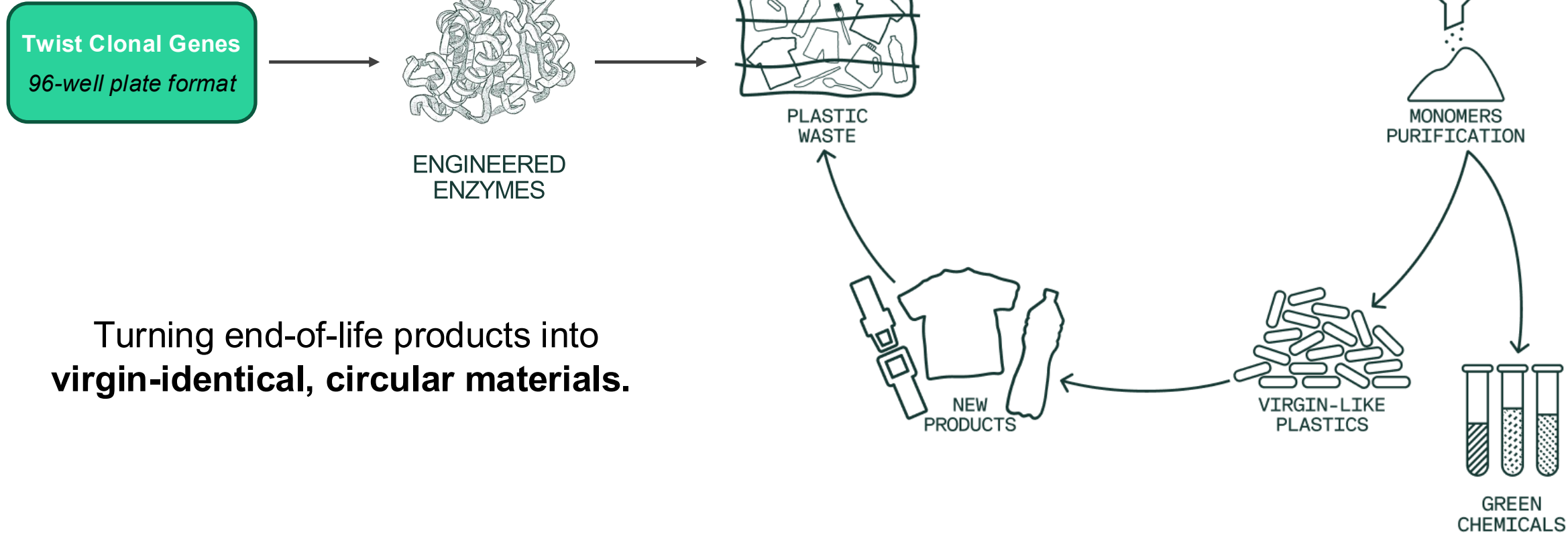
Creating circularity for the world's most valuable materials



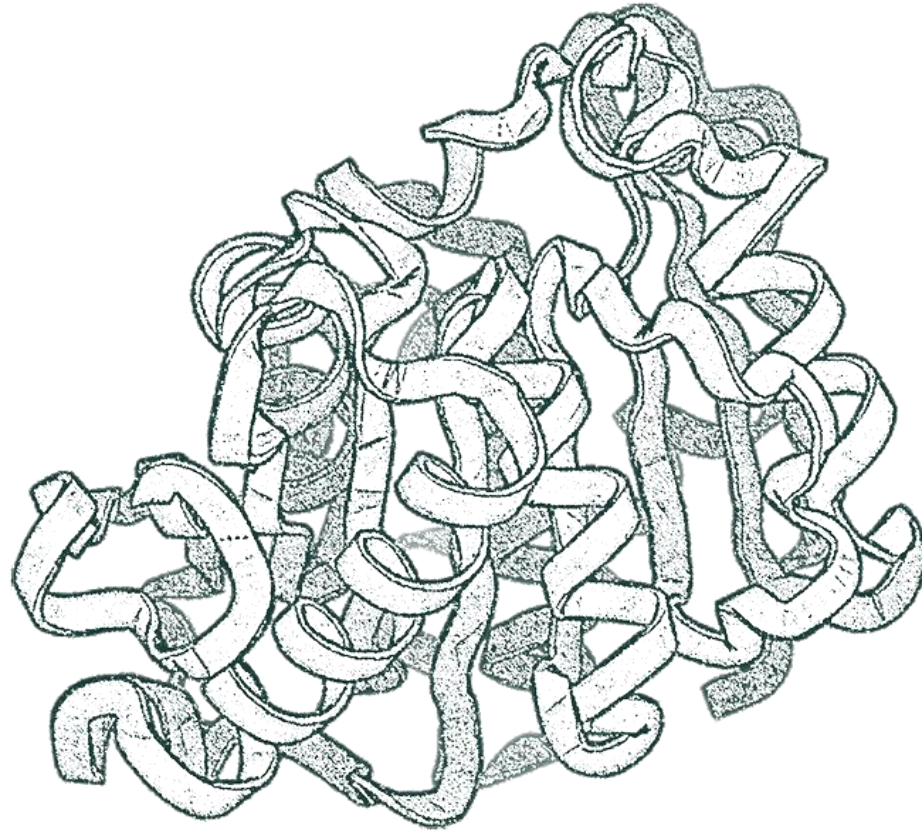
10%
of plastics are
recycled

0.3%
TEXTILE-TO-TEXTILE
RECYCLING

Our technology platform



New-to-nature
enzymes uniquely
designed to break
down plastics at
speed, scale and
with precision.



Our Esterase = 291 amino acids

[illegible]

Greater than the total number of atoms in the universe...

Our enzyme design platform learns across evolutionary history – from ancestral enzymes to natural enzymes existing today



Our enzymatic advantage

	MECHANICAL RECYCLING		CHEMICAL RECYCLING		SAMSARA TECHNOLOGY
CLOSED-LOOP CIRCULARITY	✗		✓		✓
HANDLES MIXED PLASTICS/COMPOSIT ES	✗		✗		✓
LOW CARBON FOOTPRINT	✓		✗		✓
VIRGIN IDENTICAL	✗		Not yet demonstrated		✓
END PRODUCT	Chips		Monomers		Monomers

World-first partnerships and global scale



World 1st Nylon
6,6 Garment



Lululemon 10-year agreement
to supply 20% fibre portfolio



First plant open
in Australia



Clear rPET Bottle



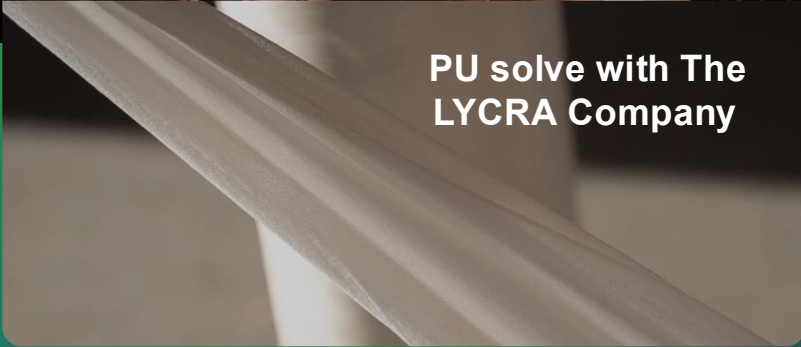
LSKD 10-year agreement



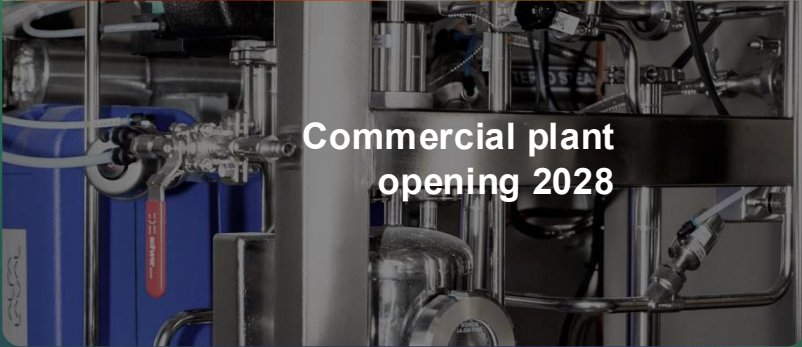
USD \$107M
backing



lululemon x Samsara
Eco retail collection



PU solve with The
LYCRA Company



Commercial plant
opening 2028

Circularity for other valuable resources



AI-enabled platform supporting the development of new-to-nature proteins and enzymes to create value from waste





Thank you

Reach out with questions to:
vanessa.vongsouthi@samsaraeco.com

Follow us on LinkedIn: /samsaraeco

Agenda

- Welcome
 - Tour
 - DSPS Strategy Session
 - Fireside Chat with Dr. Frances Arnold
 - Customer Presentations
-

Lunch

- **NGS Strategy Session**
- Customer Presentations
- Financial Overview
- Culture
- Q&A

NGS Solutions

Enabling efficient and effective customized, scalable research solutions for cancer, inherited and rare disease diagnostics

Jimmy Jin

SVP, Product and Marketing

Next Generation Sequencing Tools



One Platform, Many Customized Solutions

Meeting customers where they are, powering growth across expanding platforms

How we win



Operational excellence



NPI machine



Commercial execution

T W I S T
BIOSCIENCE

**Differentiated
Silicon Platform
Speed and Scale**

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AI-enabled antibody discovery workflow

AI-ready wet-lab at scale



Molecular residual disease

Personalized diagnostic research at scale



Enzyme-engineered NGS

Better performance, integrated workflow



Nucleic acid therapeutics

Next growth frontier

Twist culture

NGS Applications

Products

Quality

Uniformity and lower sequencing cost

Comprehensive workflows

Rapid customization

Fast throughput

Sequencer agnostic

Services

NGS **20,000 samples per day**
(Gene production)

Deep NGS **expertise and at cost**
consumables

Strong **pharma partnerships** who outsource NGS

Why We Win



Products

- Fixed panels
- Custom panels
- Alliance panels
- Library prep kits
- Reagents
- Controls and standards

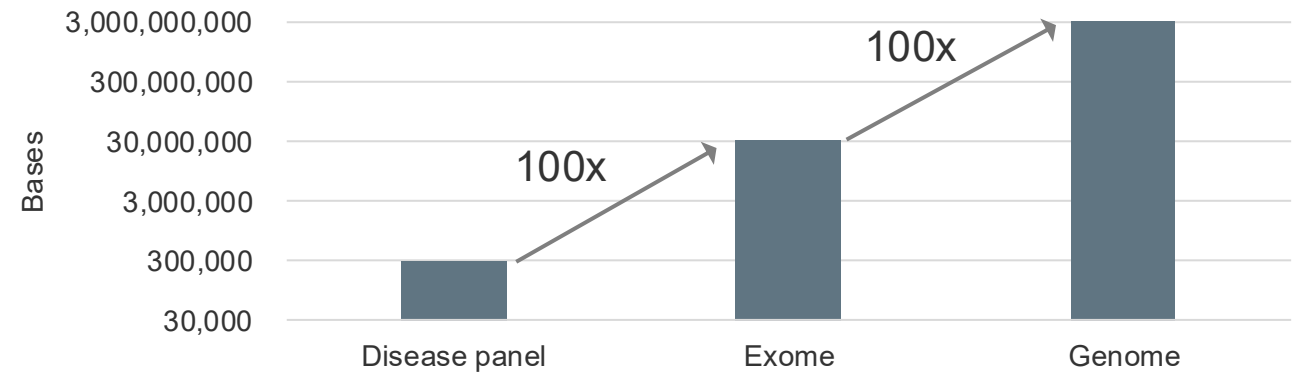
Services

- Pre and post-sale application support
- Bioinformatics
- Automation
- Service Lab
- Pilot Lab

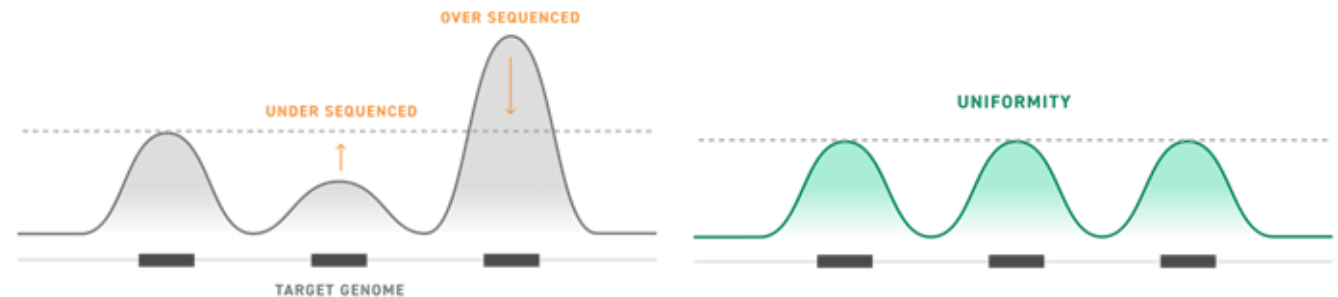
If Not WGS, It Will Be Twist



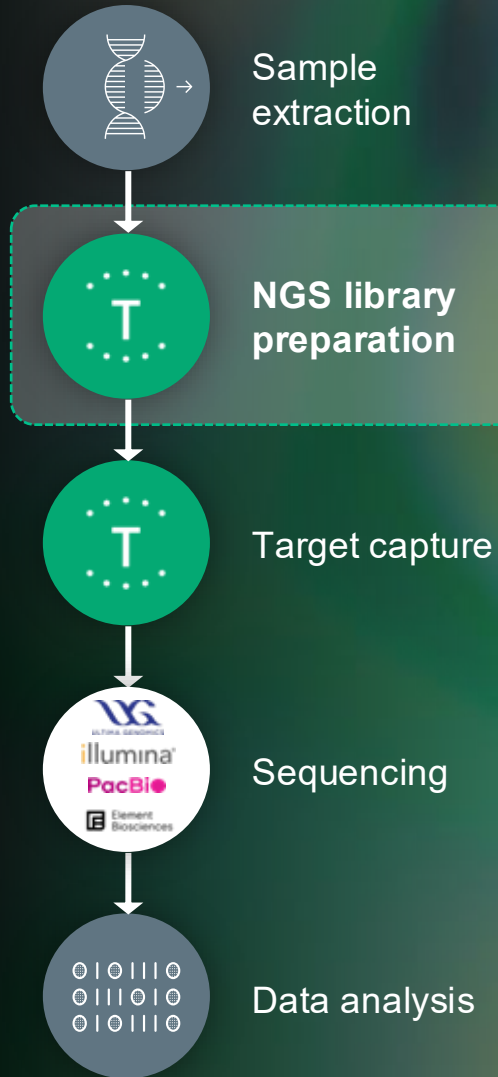
Cost of sequencing went from \$6 per Gb in 2021 to \$1-2 in 2026



Twist probes = High uniformity → Lower sequencing costs
Low failure rates



If WGS, It Should Still Be Twist



What's in a library preparation kit?

Buffers

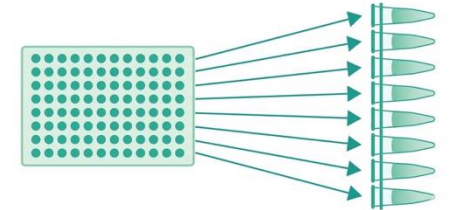
DNA

Enzymes

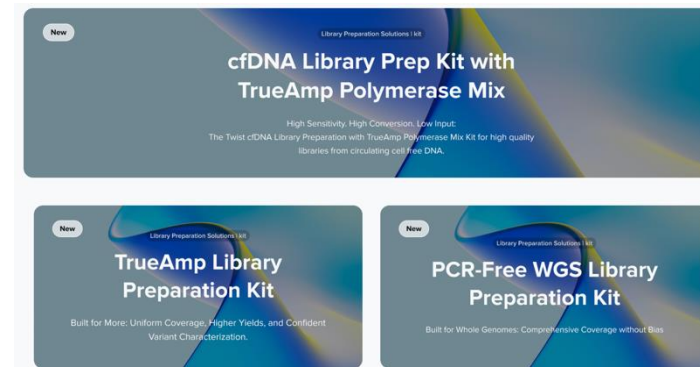
Highest throughput PCR-Free WGS kit on the market –
1536 full-length UDI adapters

Highest throughput
Library preparation
kit in general

- 3000 HT Unique Dual indexing
- FlexPrep **1152 samples** in a 96-well plate



High
performance



Conversion
efficiency

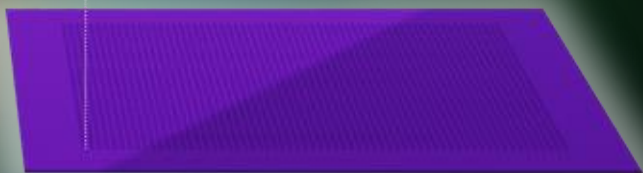
Low input &
FFPE

Quality Starts at the Chip

Large scale, quality oligo synthesis is the cornerstone of our portfolio

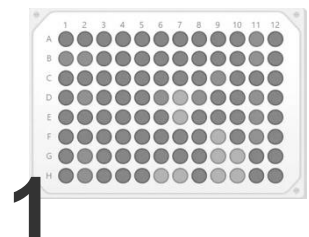


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Our silicon platform enables the precision synthesis of millions of probes.

Scale. Quality. Flexibility. Economy.



- Machines and batches
- Pipetting



Twist NGS Powers Liquid Biopsy Dx and Research



Early cancer detection

Leading supplier w/ Twist MethyloMe and **Methylation** detection system

Therapy selection

Leading supplier w/ Twist custom Comprehensive Genomic Profiling (CGP) panels

MRD

Key supplier w/ Twist exome, 5-day MRD500 & **MRD10k** panels



We are not in the horse race
We don't bet on a horse
We win

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Patient Journey



Linda S.

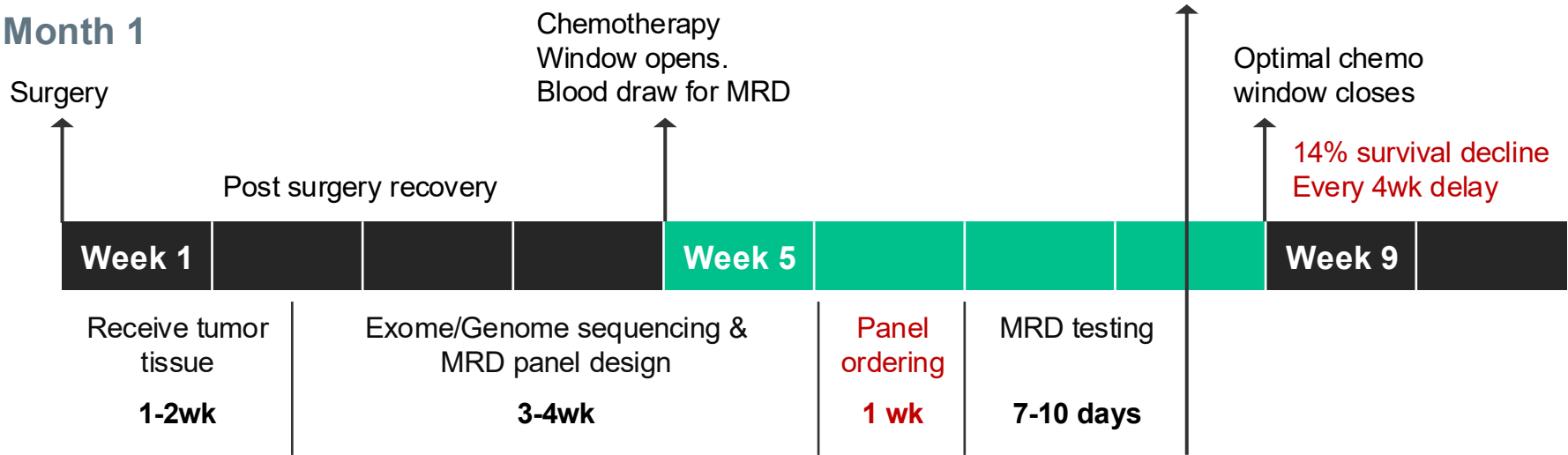
Age: 63
Gender: Female
Occupation: Retired teacher
Location: Suburban Midwest, USA
Diagnosis: Stage II colon cancer
Treatment /test context:
Month 1: Surgery complete.
Treatment decision for adjuvant chemotherapy.

Month 7:
Return for surveillance test

For illustrative purposes only

Racing Against Time and Pushing Against Limits

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Month 7

Site	Approximate incidence	MRD sensitivity needed (ppm)	False negative risks
Liver	30–50% of recurrences	100	Low
Lung	10–25%	10-100	Medium
Peritoneum	10–20%	<10	High
Distant lymph nodes	5–10%	10	High
Local recurrence	5–10%	<10	High
Bone	<5%	<10	High
Brain/CNS	<2%	<1?	Very high

NPI Machine: MRD Express

Speed and sensitivity will never be in conflict



Ultra-sensitive

Detects true ctDNA across thousands of tumor-specific targets

10,000

Tumor-specific targets



Lightning fast panels

Direct synthesis in < 24 hours

1 Day

Panel order to shipment turnaround



Built for scale

Express panels, cfDNA kits, UMI adapters, reference standards, and API/LIMS integration — automation-ready for high-volume labs and biopharma.

0 compromise

On quality and workflow

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- Type of targets
- # of targets
- Signal to noise quality of targets

MRD Methods Scan

- Fragmentomics
- WGS / AI
- Fixed panels / Methylation
- MultiOmics

- Personalized dPCR / Structural variants
- Personalized PCR Amplicon panels / Phased variants
- Personalized Target enrichment panels
- Selected enrichment of tumor variants

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The Inevitable March Towards Tumor Informed Twist Panels

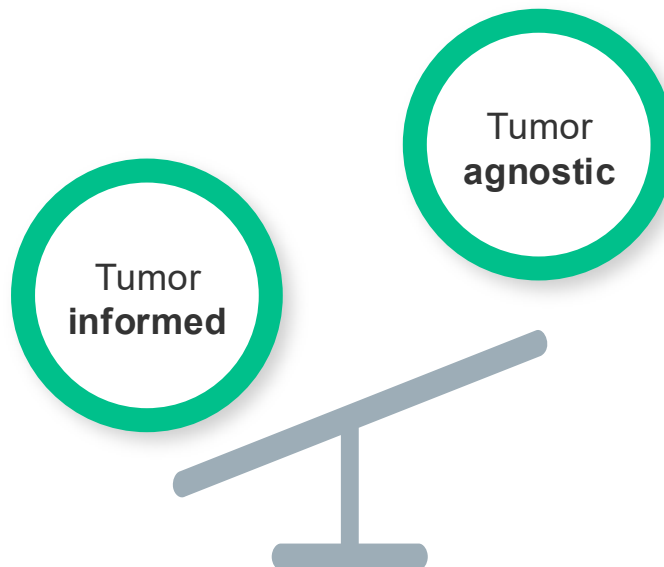


The more targets

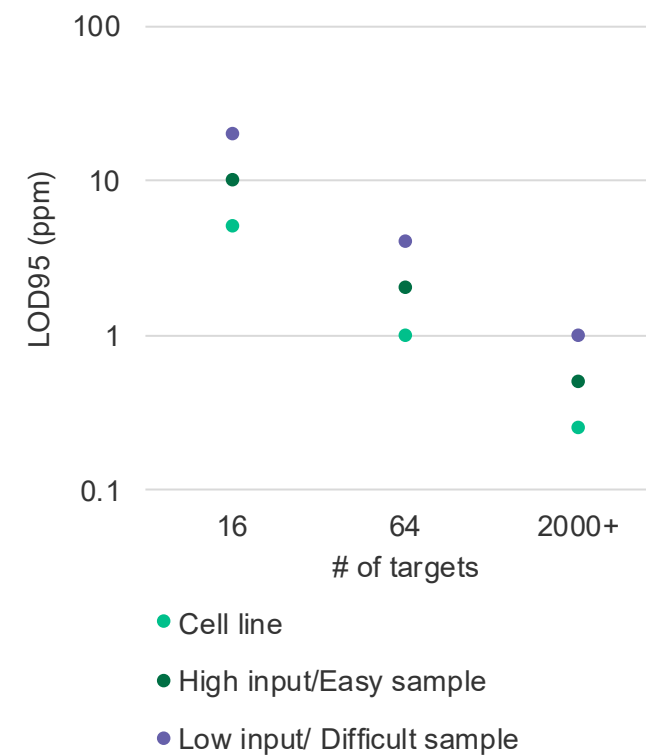
The more you know about them

The **easier** they are to spot

The more you **know**
about the targets



The more **targets**



For illustrative purposes only

MRD Express: In Focus

- Blazing **fast** synthesis in <24hours
- Industry best synthesis **quality**
- **ISO13485**
- Modified base capability for even **greater** performance
- **Future proof capacity**



Twist MRD probe capacity planning

2,300,000 MRD assays / year

1,150,000 MRD panels / year (2 assays / tumor)

2,300,000,000 probes / year (~2000 probes / panel)

4,600,000,000 oligos / year (2x oligos / probe)

4,600 Chips / year (1M oligos / chip)

16 Chips / day (300 days / year)

4 dedicated MRD writers (4 chips / writer / day)

Alternative Primers approach

230,000,000 targets / year (~200 targets / panel)

460,000,000 oligos / year (2x oligos / target)

1,500,000 oligos / day (300 days / year)

150,000 oligos / day (Primer vendor capacity)

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Patrick Finn

President and COO

Enzyme Engineering and Nucleic Acid Therapeutics



One Platform, Many Customized Solutions

Meeting customers where they are, powering growth across expanding platforms

How we win



Operational excellence



NPI machine



Commercial execution

T W I S T
BIOSCIENCE

**Differentiated
Silicon Platform
Speed and Scale**



**AI-enabled antibody
discovery workflows**

AI-ready wet-lab at scale



**Molecular residual
disease**

Personalized diagnostic research
at scale



**Enzyme-engineered
NGS**

Better performance,
integrated workflow



**Nucleic acid
therapeutics**

Next growth frontier

Twist culture

Best-in-Class Enzyme Portfolio



Enhanced performance

Reduce dependency on external partners,
more agility than competitors

Opens up OEM and NPI opportunities

The Twist Advantage for Enzyme Engineering

AI-guided design compresses the search space

Moves enzyme engineering from blind trial-and-error to targeted empirical validation

Unlock incremental functionality with differentiated performance and larger design pool

Traditional methods are technologically constrained and can only support limited enzyme designs

DNA synthesis expertise and scale enable more shots on goal

Twist can rapidly build large variant libraries to test more hypotheses

Rapid DNA enables testing of more hypotheses and faster design-build-test-learn iterations

Product-relevant screening closes the loop

We measure what matters: yield, conversion, bias, speed, low-input performance, robustness, and automation compatibility

Application proximity drives commercial relevance

Enzymes are engineered directly for NGS kit requirements, not isolated biochemical activity

Vertical integration converts innovation into revenue

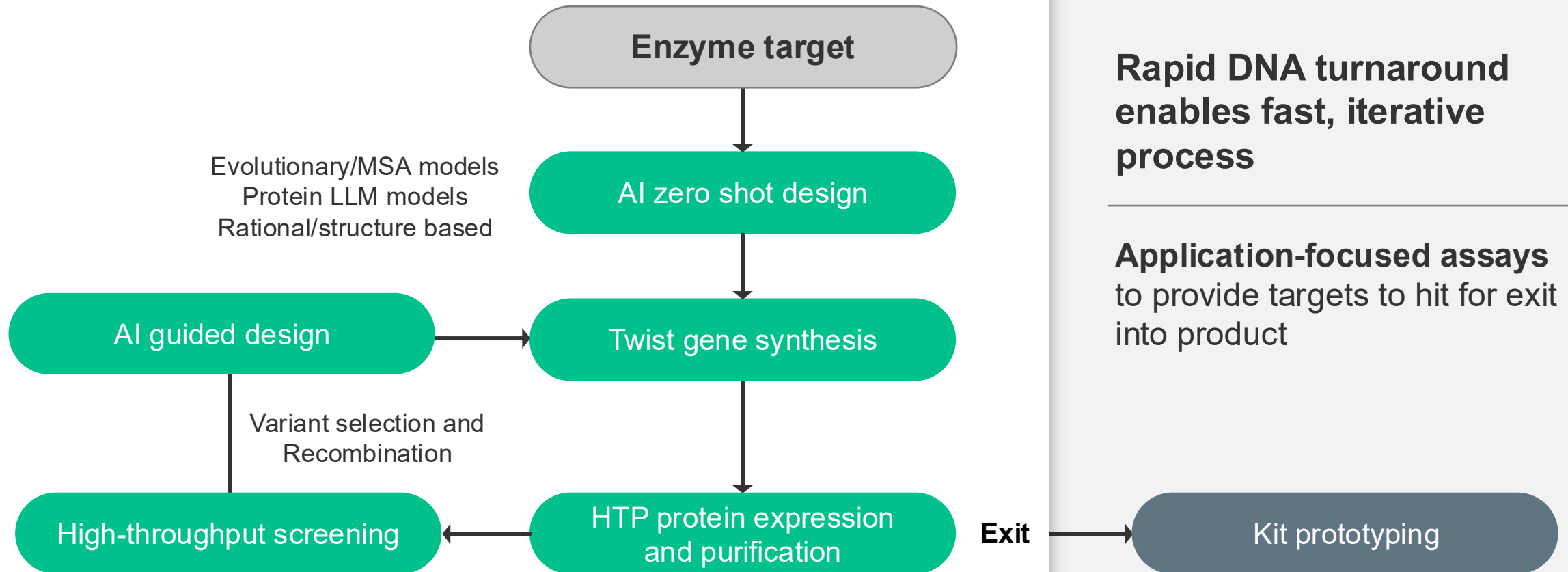
Better enzymes become differentiated products with improved performance, supply control, and margin potential

Each cycle creates proprietary learning

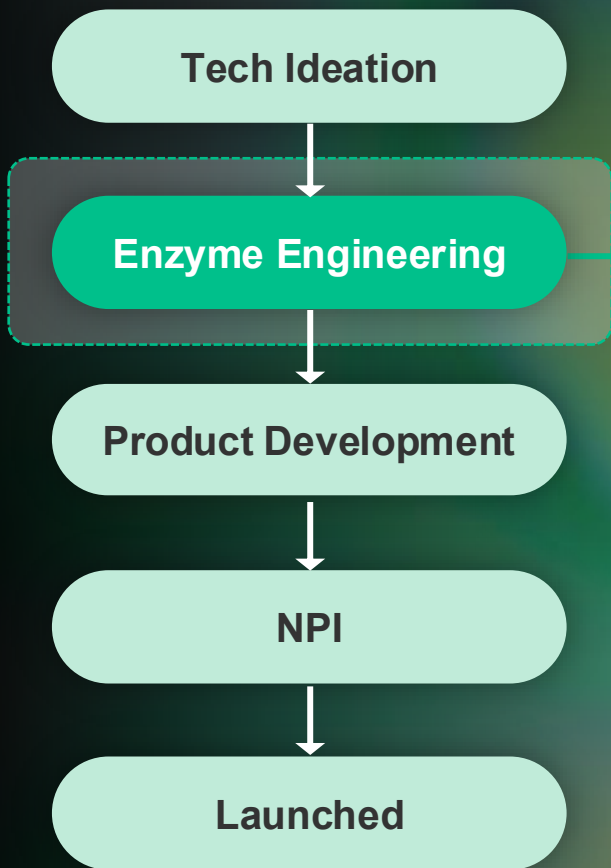
Sequence-function data improves future design and compounds the platform advantage

Our Experimental Workflow to Optimize Results

10 Days/Cycle



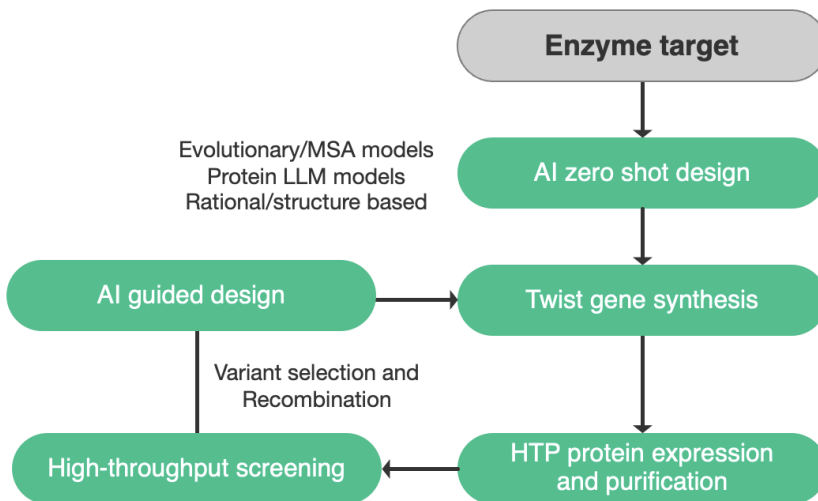
NGS and Enzyme Engineering



Expand catalog of enzymes

- Drive healthy pipeline of engineered enzymes
- Capitalize on robust infrastructure established for enzyme discovery, engineering, buffer DoE and manufacturing

10 Days/Cycle



Rapid DNA turnaround enables fast, iterative process

Application-focused assays to provide targets to hit for exit into product

Case Study: Ligase into NGS Kits

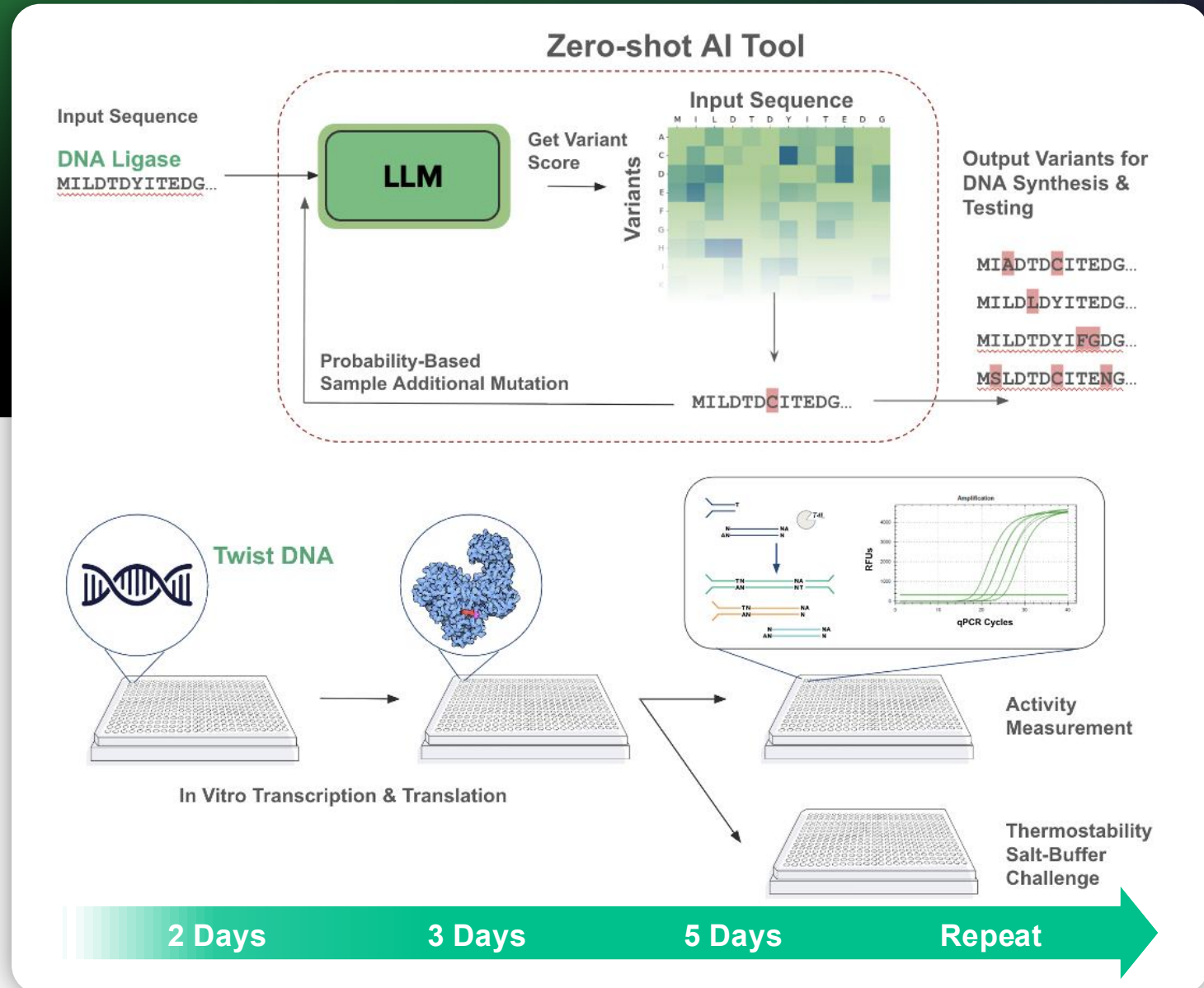
Challenge: Low input cfDNA for tests, impacted conversion efficiencies, buffer sensitivity of ligase

Goal: Engineer a Robust, best-in-class efficiency DNA ligase that works with Low input DNA

Strategy: Utilize **LLM-based design tools** to introduce beneficial stability and activity mutations. Leveraged **Twist Gene Fragments** to produce screening scale enzymes. 13 rounds of High-throughput assays to screen for desirable properties.

Used **Twist Clonal DNA** for large scale purification and validation. No molecule left behind.

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Case Study: Ligase into NGS Kits Engineering Outcome

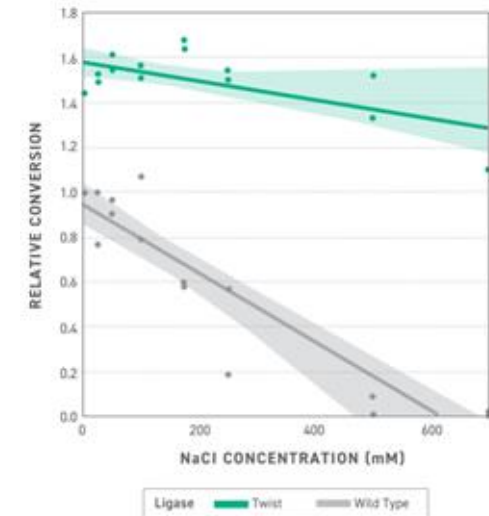
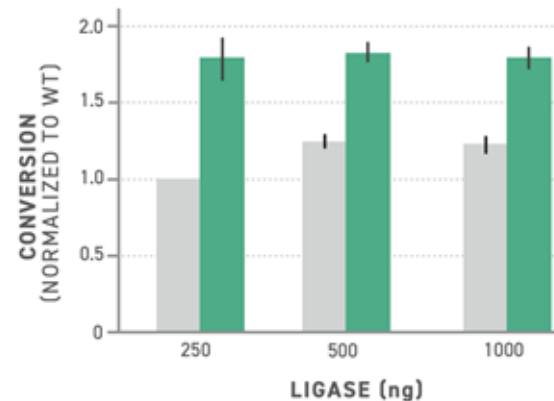
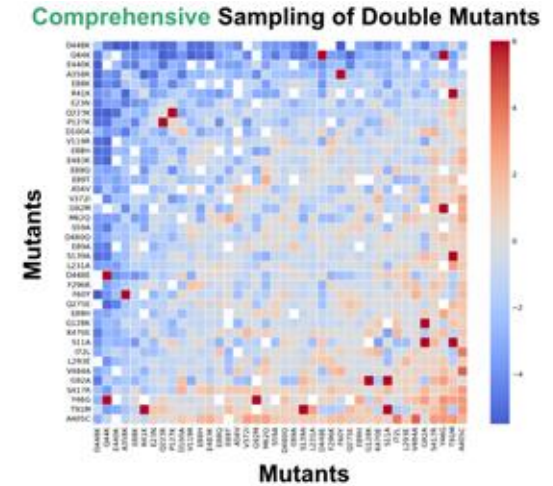
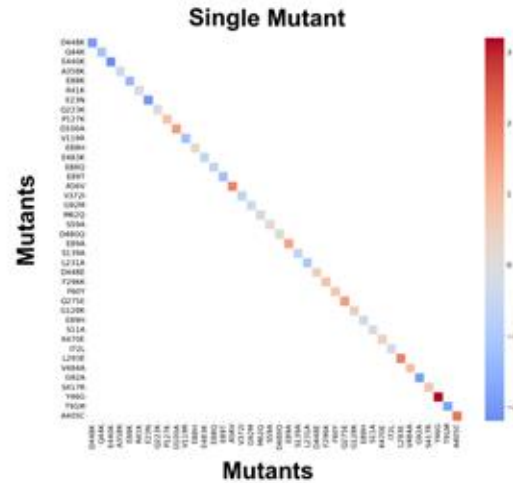
Advantages:

- Rapid DNA turnaround time for weekly iterations
- Low price point
- Best-in-class conversion of low input DNA

Twist leverages this DNA ligase in
NGS Library Prep product portfolio

Twist uses **10x less ligase**
internally for high conversion

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Case Study: Polymerase

Challenge: GC amplification bias in complex libraries

Goal: Engineer a high-fidelity DNA polymerase solution with a high-performance buffer for best-in-class uniformity

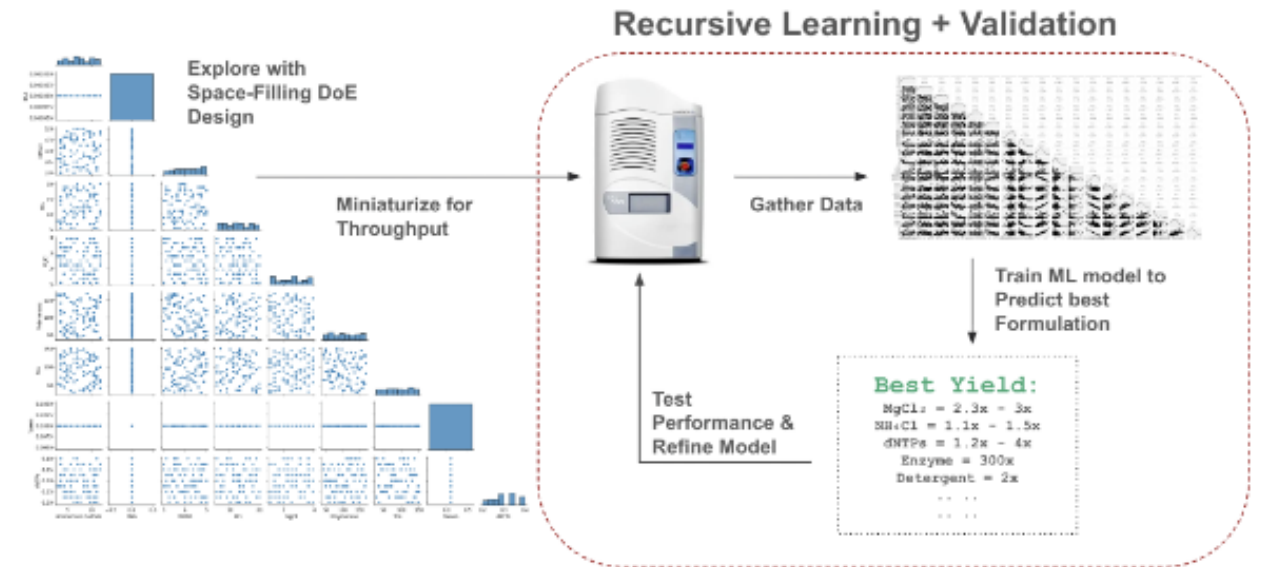
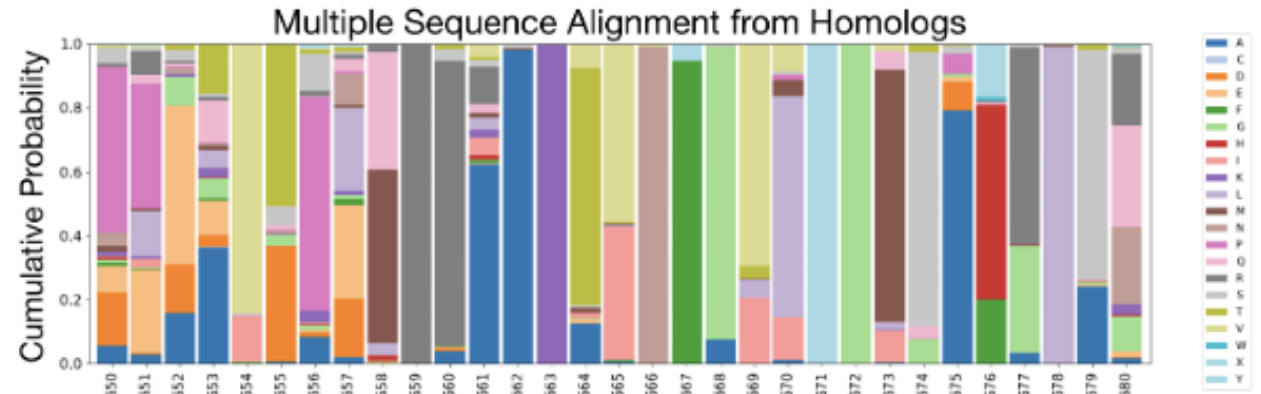
Enzyme Strategy

Utilize **LLM** and **Multiple Sequence Alignment (MSA) Tools** and **Structure Modeling** to sample mutations in functional hot-spots

Buffer Strategy

Utilize **space-filling Design of Experiments (DoE)** approaches to broadly sample and **supervised learning** to predict best buffer compositions

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Case Study: Polymerase Results

Engineered Polymerase to provide robust and uniform coverage across various GC regions
Uniform coverage enables tracking of sequence-challenging variants

Twist Polymerase solution encompasses

1. High-Fidelity Polymerase
2. Robust and High-Performance Buffer

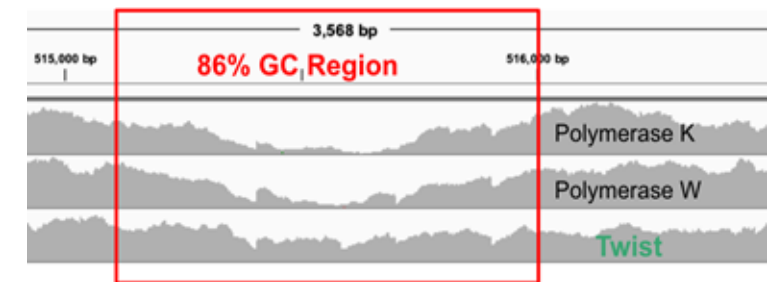
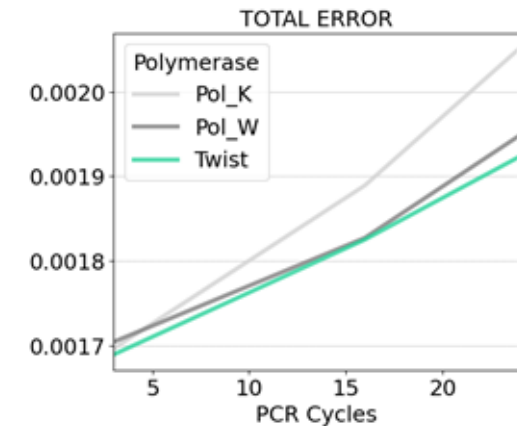
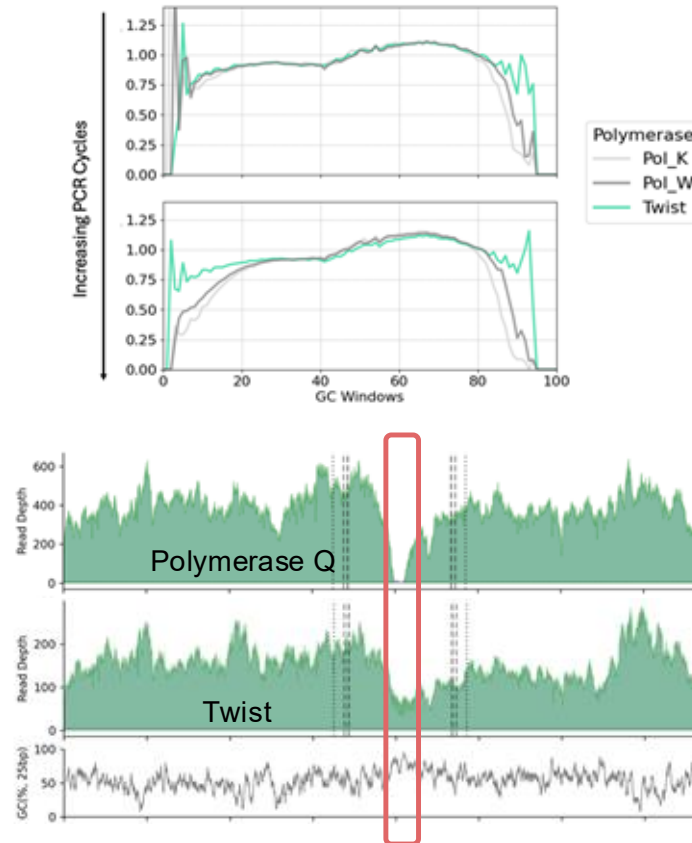
Results

Leveraged Twist Express Clonal Genes and Twist Cloned Single Variant Libraries (SVL) for E.coli expression, purification and arrayed screening to identify winning mutations for improved activity and fidelity

Outcome

Best-in-class uniformity

Twist leverages this DNA polymerase in sequencing confirmation of every gene that is delivered in DNA Synthesis Portfolio



New Twist DNA Library Prep: Leveraging Enzyme Engineering for Superior NGS Performance

Introducing Twist TrueAmp and PCR-Free WGS: A New Standard in Enzymatic Fragmentation Library Prep



TrueAmp Library Prep

Library prep samples
that are degraded or
have low input



PCR-Free WGS Library Prep

Library prep for whole
genome sequencing

Proprietary innovation via enzyme engineering

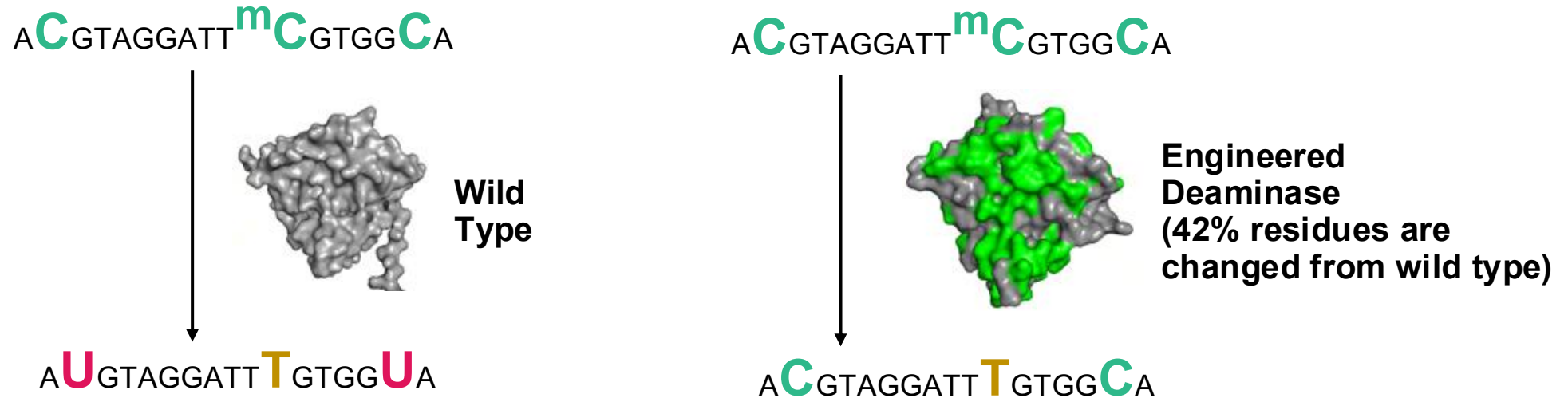
Integrating our engineered fragmentation module, T4 DNA ligase, and TrueAmp Polymerase, these kits deliver **low-bias, high-uniformity** libraries with **strong yields**, even from **FFPE or ultra-low inputs** down to 0.1 ng.

High-performance solutions for any scale

The **TrueAmp** and **PCR-Free WGS** kits provide comprehensive, high-performance solutions for diverse sequencing needs. While the TrueAmp kit offers tunable enzymatic fragmentation with minimal bias, the PCR-Free workflow utilizes high ligation efficiency to eliminate amplification bias entirely.

Methylation: New Enzyme Differentiation

Twist-engineered C-deaminase distinguishes mC and C



Engineered for:

- High targeted specificity towards mC > T conversion, maintaining genome complexity
- High thermal stability
- High activity to enable <30min reaction time

NPI Machine: Regulated Products for Clinical Customers

Unlocking new market opportunities

- In Vitro Diagnostic Medical Device Regulation (IVDR) poses major shift in the European regulatory landscape for NGS diagnostics
- EMEA growing area of Twist business
- Proactively pursuing rigorous compliance efforts across all key areas to introduce Twist Precision Dx kit
- Pairs well with product portfolio for clinical customers

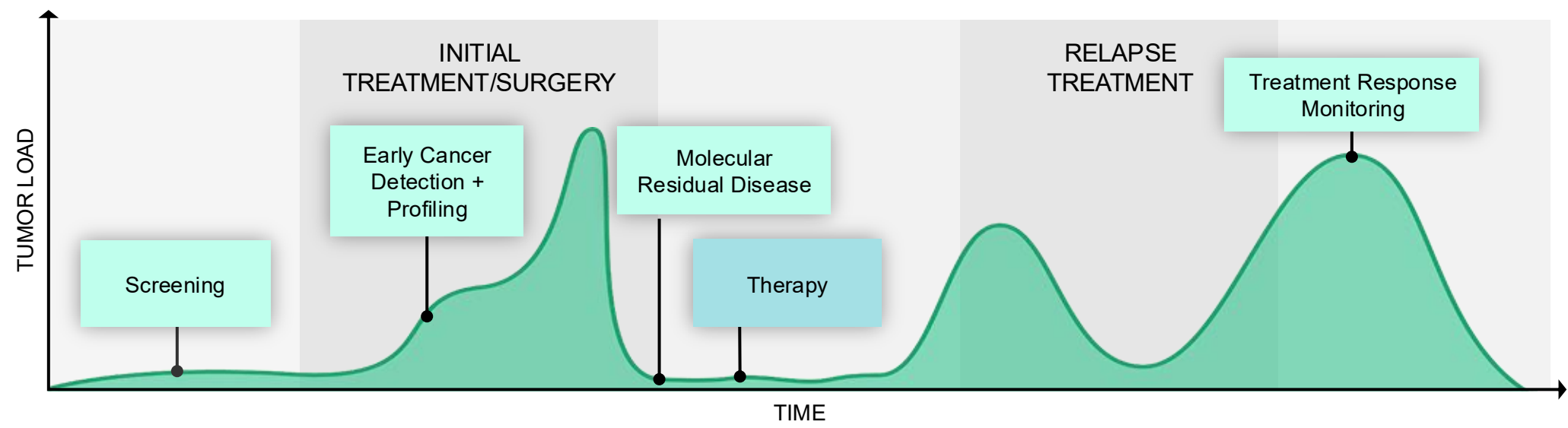
Our CE-marked Twist Precision Dx Products are available in 3 configurations

Products	Content
Twist Precision Exome Dx Kit	Comprehensive exome workflow with library prep, target enrichment, and exome panel
Twist Precision Prep and Enrichment Kit	Panel agnostic library prep and enrichment
Twist Precision Exome Dx Panel	Exome panel that can be integrated with other workflows



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

Twist Powers the Continuum of Care in Cancer Research



DIAGNOSTIC						THERAPEUTIC	
SCREENING		EARLY DETECTION + PROFILING		MINIMAL RESIDUAL DISEASE		NEOANTIGEN THERAPY	
WGS + WES High throughput applications	RNA-Seq Low input, FFPE, Whole transcriptome	WGS + WES High throughput applications	Methylation Epigenetic biomarker detection	Express MRD 1 BD TAT personalized panels	WGS + WES High throughput applications	mRNA	Clonal Genes
Library Prep + Enrichment	Custom Panels (HLA) Multi-allelic coverage	Liquid Biopsy Deep sequencing applications	CGP Panels Oncology detection	Custom Panels Targeted tumor naïve tests	cfDNA LP Ultra sensitive library preparation	Antibody Discovery	HT IgG

One Platform, Many Customized Solutions

Meeting customers where they are, powering growth across expanding platforms

How we win



Operational excellence



NPI machine



Commercial execution

T W I S T
BIOSCIENCE

**Differentiated
Silicon Platform
Speed and Scale**



**AI-enabled antibody
discovery workflows**

AI-ready wet-lab at scale



**Molecular residual
disease**

Personalized diagnostic research
at scale



**Enzyme-engineered
NGS**

Better performance,
integrated workflow



**Nucleic acid
therapeutics**

Next growth frontier

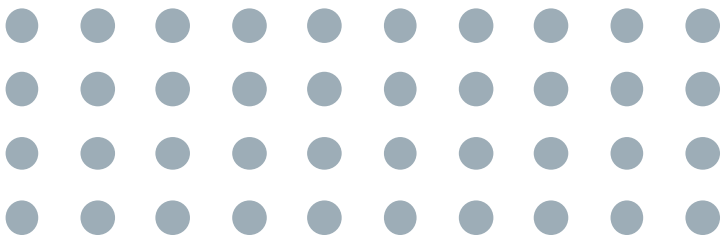
Twist culture

Powering a New Era of Therapeutics with Future Product Introductions

2020

Building UP

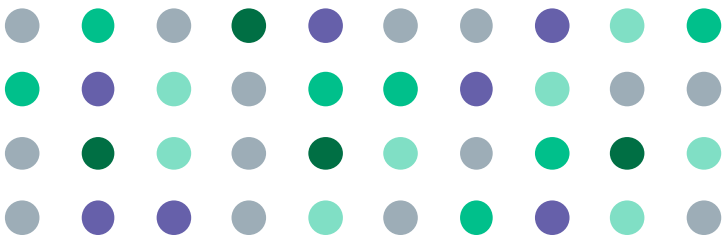
One therapy
for millions of people



2026

Building OUT

Personalized therapies
for millions of people



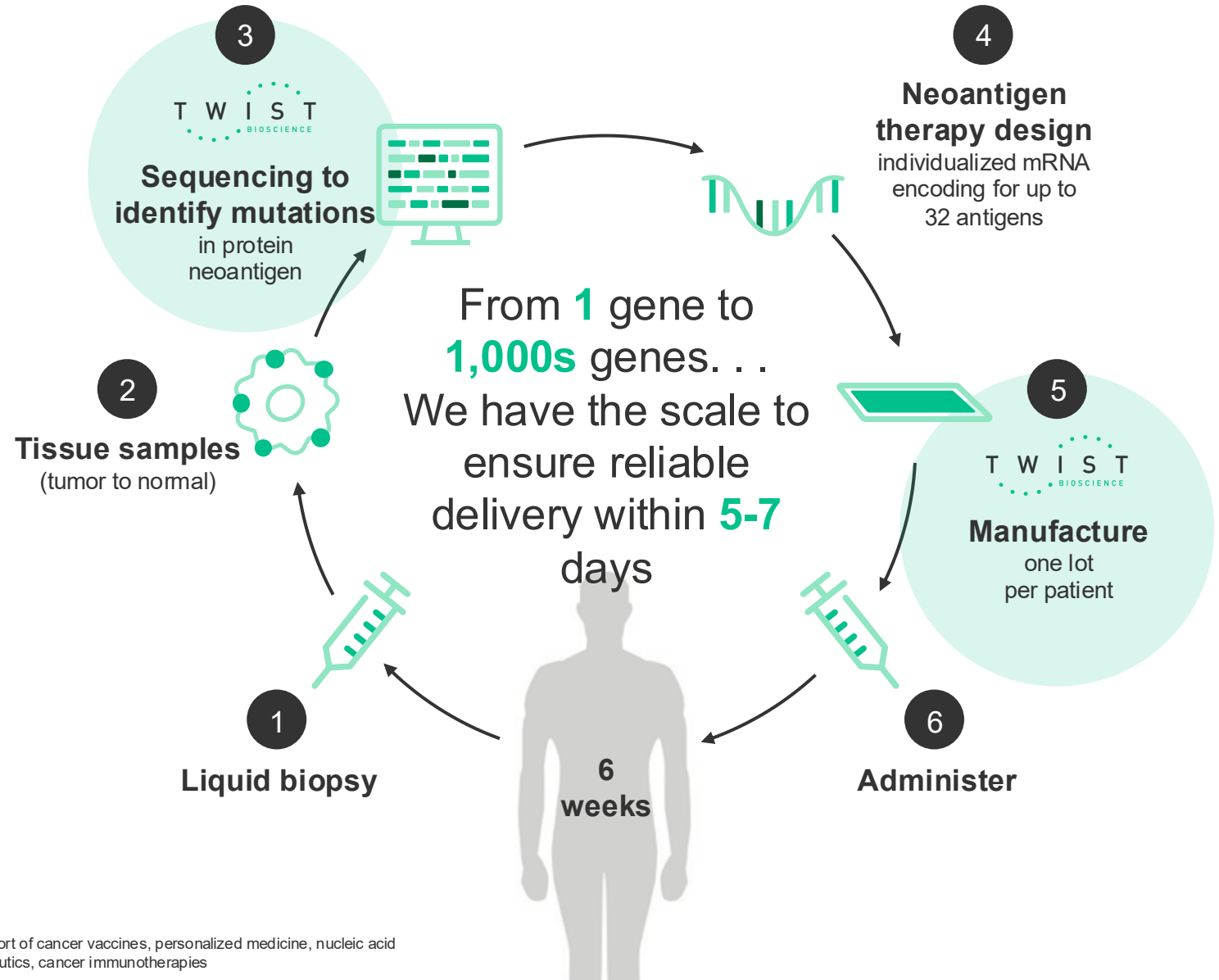
The Need

Capacity, scale, and pricing for needle-to-needle success

Supporting Tools for Personalized Therapy Workflows at Scale*



Example Customer Workflow



* In support of cancer vaccines, personalized medicine, nucleic acid therapeutics, cancer immunotherapies

Robust Product Portfolio Supports Complexity of Nucleic Acid Therapeutics

Ability to address
99.9% of
DNA sequences



Affordable price





High quality





Scale





Speed





Complexity



Robust product portfolio



Coming Soon
Complex Gene Synthesis

A huge update to our Gene Synthesis platform is imminent. Be the first to know when it lands.

100%
sequence perfect

12¢
per bp starting price

Find out first

For research use only, not for use in diagnostic procedures.

The prices listed apply exclusively to orders placed within our direct service countries. For regions serviced by our authorized distributors, pricing, taxes, and shipping fees may vary.



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681 Gateway Blvd, South San Francisco, CA 94080
[Preference center](#) | [Unsubscribe](#)



Twist is Writing the Future of Nucleic Acid Therapeutics

We deliver what nucleic acid therapeutics require today

Perfect quality nucleic acid synthesis

Lowest error rates, highest quality in the industry

Scale to build out individual sequences to serve the patient community

Deliver millions of genes per year with capacity to scale to support future global demand

High-quality and fast DNA synthesis, at scale

Delivering clonally perfect DNA in 4-7 days, no compromise to turnaround time, quality or purity

Minimal carbon footprint

Massively reduced carbon footprint vs. traditional methods

Unmatched unit economics

< \$1,000 per patient

Our DNA synthesis platform future-proofs supply chain for generations

One Platform, Many Customized Solutions

Meeting customers where they are, powering growth across expanding platforms

How we win



Operational excellence



NPI machine



Commercial execution

T W I S T
BIOSCIENCE

**Differentiated
Silicon Platform
Speed and Scale**



**AI-enabled antibody
discovery workflows**

AI-ready wet-lab at scale



**Molecular residual
disease**

Personalized diagnostic research
at scale



**Enzyme-engineered
NGS**

Better performance,
integrated workflow



**Nucleic acid
therapeutics**

Next growth frontier

Twist culture

Twist's Commercial Philosophy



- We are in the business of **delighting our customers**
- Every Twister is **passionate** about our customers'
- Go into a market with the ambition of a world where **we are #1 and there's no #2**
- There is only one way to go for our sales results: **13 consecutive quarters** of sequential (QoQ) growth
- We readily **OEM out our best products to competition**, as we must and we will outsell anyone
- As a salesperson, **you are what your numbers say you are**
- As a commercial leader, if you don't fix the problem, **you are the problem**
- We **reward performance** and regularly identify and remove people who are **better off working for competition**

Driving Broad Access to DNA through Flexible Commercial Model

1

Relationship-led sales channels

Direct sales

General account managers serving broad commercial accounts

Key account management

Dedicated coverage for large and strategic customers

Academic / government sales

Specialized support for research institutions and public sector buyers

2

Scaled growth channels

Inside sales

Customer acquisition and long-tail account growth

Digital channel

Scientists and end user order directly from Twist

eCommerce

B2B punchout

API ordering

Self-service ordering for institutions and high-volume accounts

3

Partner channels

OEM channel

Twist supplies third parties that sell Twist products under their own brand

Expands reach through embedded partner distribution



Scientists



Labs



Institutions



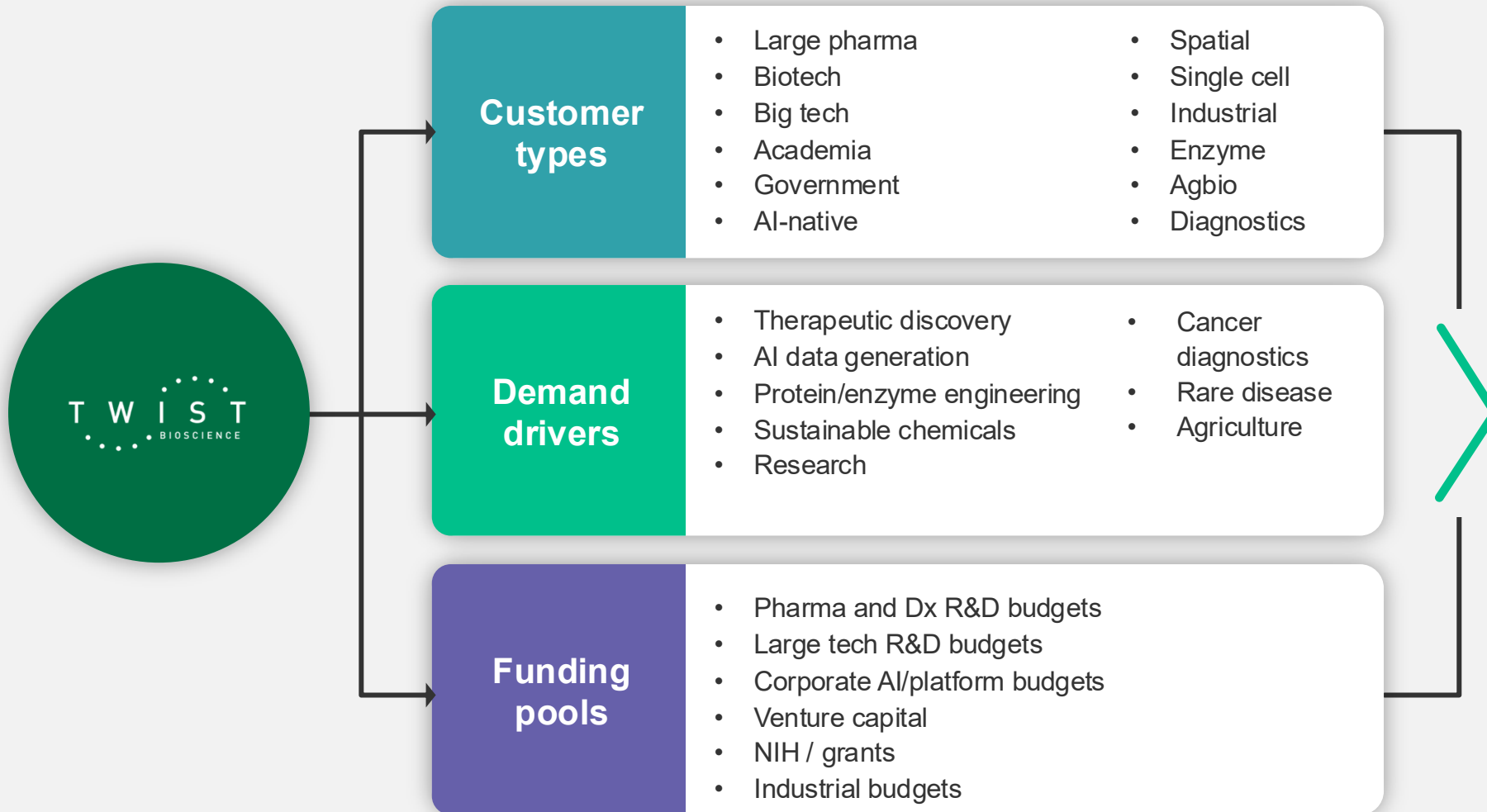
Enterprise
accounts



OEM
partners

A multi-channel commercial model allows Twist to **serve everyone from individual scientists to strategic enterprise and OEM partners**

Diversified Customer and End-Market Exposure Supports Durable Demand



Resilient Demand Profile

✓ End market pressures offset by other growth drivers

✓ Funding cycles do not determine DSPS demand

✓ Increasing application diversity expands market opportunity

Twist's diversified customer types, demand drivers, and budget pools **reduce dependence on any single customer**

Agenda

- Welcome
 - Tour
 - DSPS Strategy Session
 - Fireside Chat with Dr. Frances Arnold
 - Customer Presentations
-

Lunch

- NGS Strategy Session
- **Customer Presentations**
- Financial Overview
- Culture
- Reception

REGENERON GENETICS CENTER

Sequence more samples, not more bases

John Overton, PhD

Chief Sequencing Officer, Regeneron Genetics Center
Vice President, Regeneron Pharmaceuticals

Why targeted sequencing is still the smarter bet for drug discovery research — even as whole genome sequencing costs continue to fall.

The RGC sequences the genome to discover the genetic causes of disease

- The RGC has built one of the world's largest human genetics research databases, ~3.5M participants, by combining high-throughput whole exome sequencing and genotyping to create imputed genomes
- With WGS costs rapidly falling, why not just sequence the whole genome?
- For our purposes, discovering the genetic causes of disease for therapeutic intervention, we believe that a well-imputed genome performs just as well as WGS
- We have empirically assessed the utility of whole genome sequencing versus an imputed genome for studies of complex traits and the results are clear

APPROACH 1 — Genotyping + Imputation (IMP)

Mostly assesses known variation in non-coding regions of the genome; imputation fills in the gaps

- Panels commonly target 500K–1.5M known variant sites across the genome
- Imputation against reference genomes creates an imputed genome covering common variation; lowest cost per sample

APPROACH 2 — Whole exome sequencing (+ Imputation, WES+IMP) ★ RGC standard

Targets coding regions for rare and common variation, combined with genotyping to create an imputed genome

- ~20,000 coding variants per person (ancestry-dependent)
- Genotyping adds 500K–1.5M non-coding sites; imputation fills in gaps to create an imputed genome

APPROACH 3 — Whole Genome Sequencing (WGS)

Captures the full genome — ~3.6M variants per person — but at significant cost and time

- Most WGS variants are rare, non-coding, and not amenable to many tools available for large-scale association analyses (e.g., gene-burden tests)
- 3–10× more expensive per sample, creates a large data footprint, and exome+genotyping sequencing is 20X faster than whole genome sequencing

The UK Biobank, a cohort of 500K volunteers, has been genotyped, exome sequenced (at the RGC), and whole genome sequenced — enabling direct comparison of sequencing approaches

Article

<https://doi.org/10.1038/s41588-024-01930-4>



Panel a — variants captured (N=~150,000 participants)

WGS detects ~5× more variants than WES+IMP

- WES: 17M, IMP: 111M, WES+IMP: 126M, and WGS: 599M variants
- Coding variant counts are essentially identical between WES+IMP and WGS platforms
- The extra 473M in the WGS cohort not seen in the WES+IMP data are all non-coding

Panels b+c+d — WGS variants are non-coding and ultra-rare

~97% of coding variants are shared; WGS non-coding variants are almost all ultra-rare

- Only ~3% of coding variants are unique to one platform
- Mean coding variants per person (panel c) are nearly identical: 20,000 (WGS) vs. 20,039 (WES+IMP)
- 80% of non-coding variants are WGS-only; most seen in only 1 person, virtually all in ≤3 people (panel d)

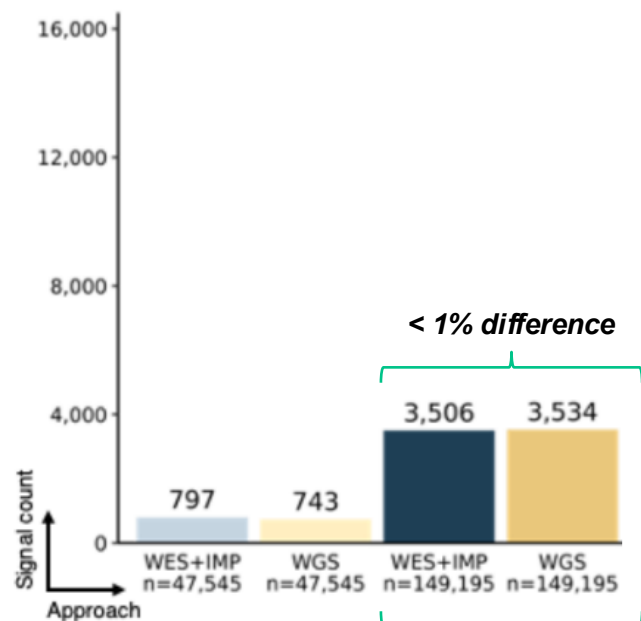
The implication

The extra bases in WGS add cost, not insight

- Coding variants — the primary source of actionable drug targets — are captured equally well by WES+IMP and WGS
- Ultra-rare non-coding variants seen in 1–3 people, if real, will not reach statistical significance in association studies (ultra-rare variants in coding regions can be combined for analyses)
- The question is not how many variants are found — it's whether they can be used

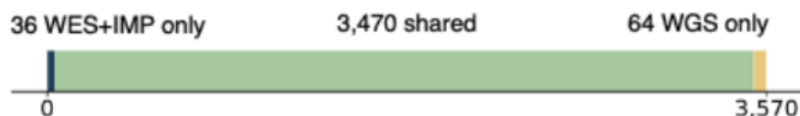
Across 100 phenotypic traits – 80 quantitative + 20 binary phenotypic traits at fixed sample sizes, WGS and WES+IMP show nearly identical genetic association results

Single variant association yield



Same sample size,
different approach

Contributions to single variant signals (n=149,195)



Total association signals

Signal counts differ by less than 1% at ~150,000 samples

- WES+IMP: 3,506 signals vs. WGS: 3,534 signals — a <1% difference
- 3,470 of 3,570 loci shared between platforms — 97% overlap — and almost all point to the exact same variant in the genome

Platform-unique signals

Platform-unique signals are weak associations and artifacts that often do not replicate

- Only 36 WES+IMP-only and 64 WGS-only unique signals out of 3,570 total
- Weak p-values near threshold — often fail to replicate in later analyses

Gene-based tests

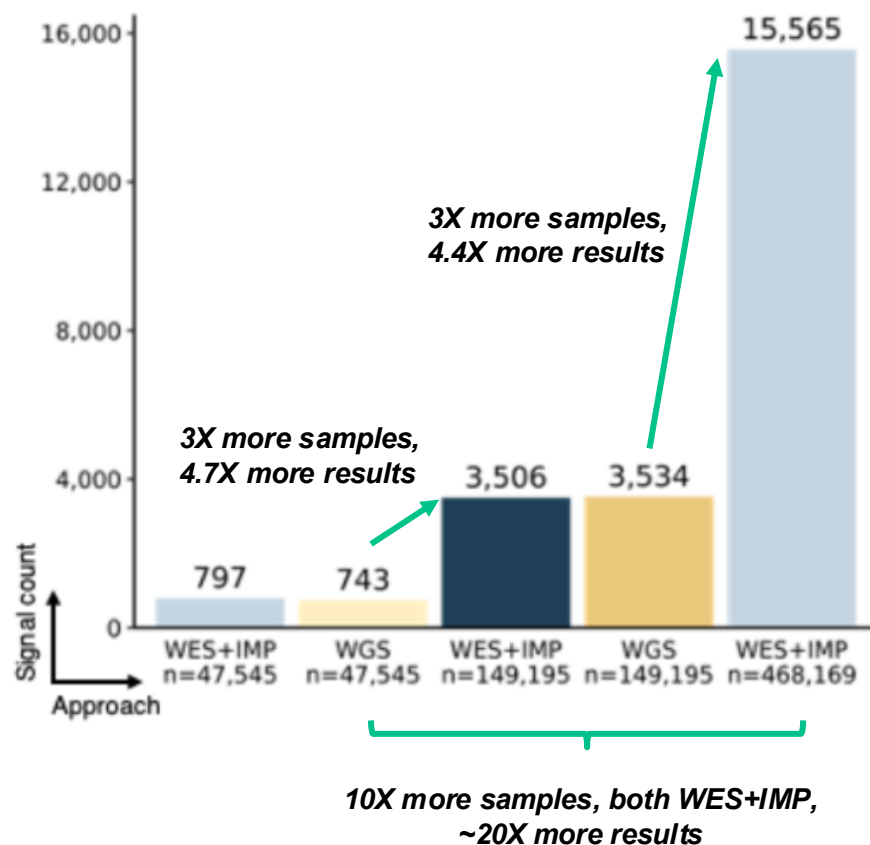
Gene-based results are concordant — the same conclusion holds

- Gene-burden analyses show identical discovery yield between WES+IMP and WGS at matched sample sizes
- Results hold across both quantitative and binary traits

On a fixed budget, having more samples is more important than more variants per sample: a three-fold increase in sample numbers results in ~5-fold more associations

Cost-matched comparison: WES+IMP cohort 3× larger than WGS at current cost differential; also modelled at 10× cost efficiency

Single variant association yield



At 3× cost efficiency

3× more samples yields 4-5× more single-variant signals

- WGS: 743 signals at n=48K → WES+IMP: 3,506 signals at n=149K
- WGS: 3,534 signals at n=149K → WES+IMP: 15,565 signals at n=468K
- More samples — not more bases per sample — drives discovery

At 10× cost efficiency

At 10× cost efficiency, exomes buy far more samples — and the discovery advantage compounds

- WGS: 743 signals at n=48K → WGS+IMP: 15,565 signals at n=468K
- At 3× cost: 4× more results — at 10× cost: >20× more results
- The cost advantage of targeted sequencing will continue to grow as sequencing costs continue to fall

Genotyping arrays failed to take advantage of the advancements in sequencing technology — the RGC and Twist built a solution that does

The problem

Standard arrays couldn't scale with our ambitions — or serve diverse cohorts

- As we scaled to millions of samples, we needed to move genotyping beyond arrays
- We wanted to create an assay that could replace array genotyping, be processed as quickly and easily as exomes, and cover all genetic ancestries equally well

We needed something that didn't exist...

The SNP diversity panel

**Co-developed with Twist in 2019–2020:
Ancestry-agnostic, scalable, comprehensive**

GSA: ~600K variants → SNP Diversity Panel: ~1.5M variants

~2.5× more variants, via ~600K probes

- Ancestry-agnostic by design — performs equally well across genetically diverse cohorts
- Combined with exome capture in a single workflow; used on >2.5M RGC samples
- Imputation results comparable to the largest available arrays — closing the quality gap for non-European cohorts

The data is clear: sequence more samples, not more bases

01 WGS and WES+IMP deliver nearly identical genetic associations at matched sample sizes

WGS captures 5× more variants — but they are overwhelmingly non-coding, ultra-rare, and largely unusable; the extra bases add cost, not insight.

02 On a fixed budget, WES+IMP buys 3–10× more samples — yielding 4–20× more discoveries

Sample count — not base count — is the true driver of genetic discovery; as sequencing costs continue to fall, this advantage only grows.

03 The RGC's SNP Diversity Panel extends this advantage

Co-developed with Twist, the SNP Diversity Panel brings ancestry-agnostic, sequencing-scale genotyping to cohorts of any size.



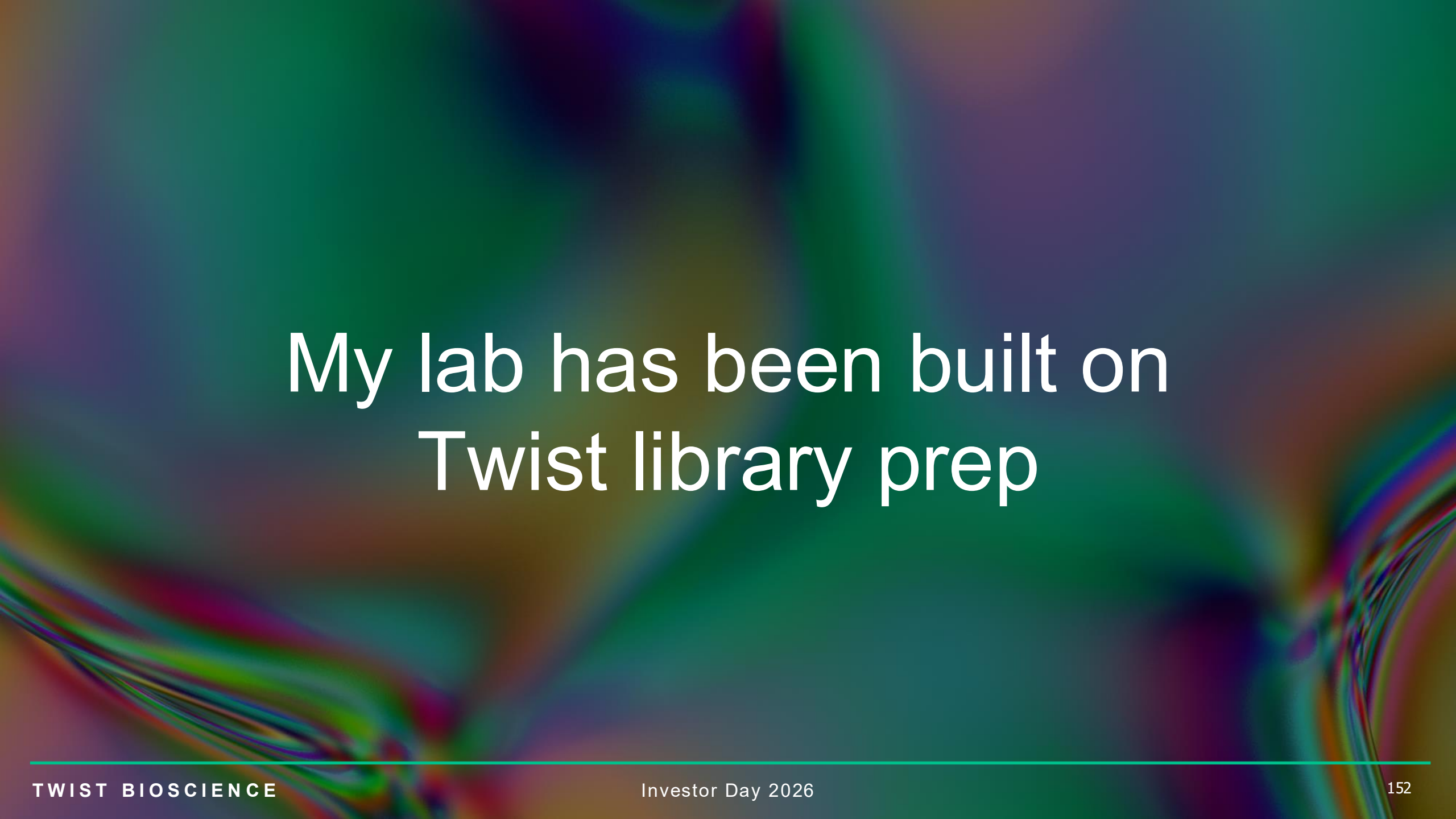
Thank you

HUDSONALPHA INSTITUTE
FOR BIOTECHNOLOGY

Josh Clevenger

Faculty Investigator

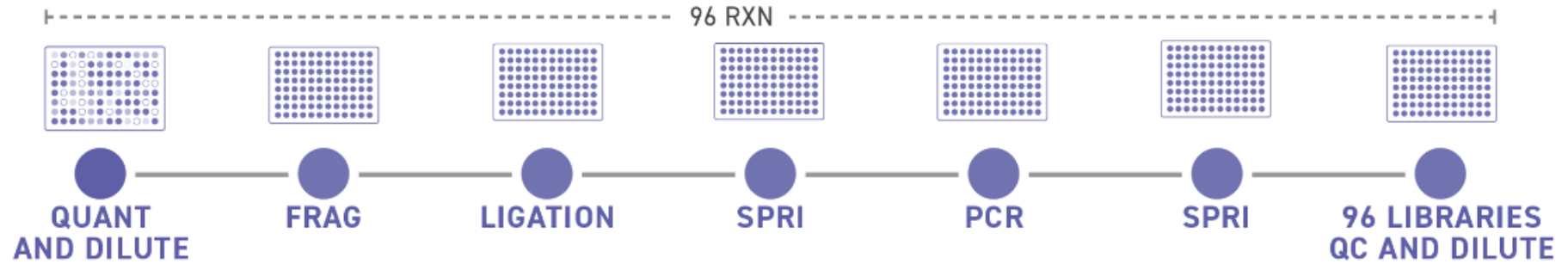




My lab has been built on
Twist library prep

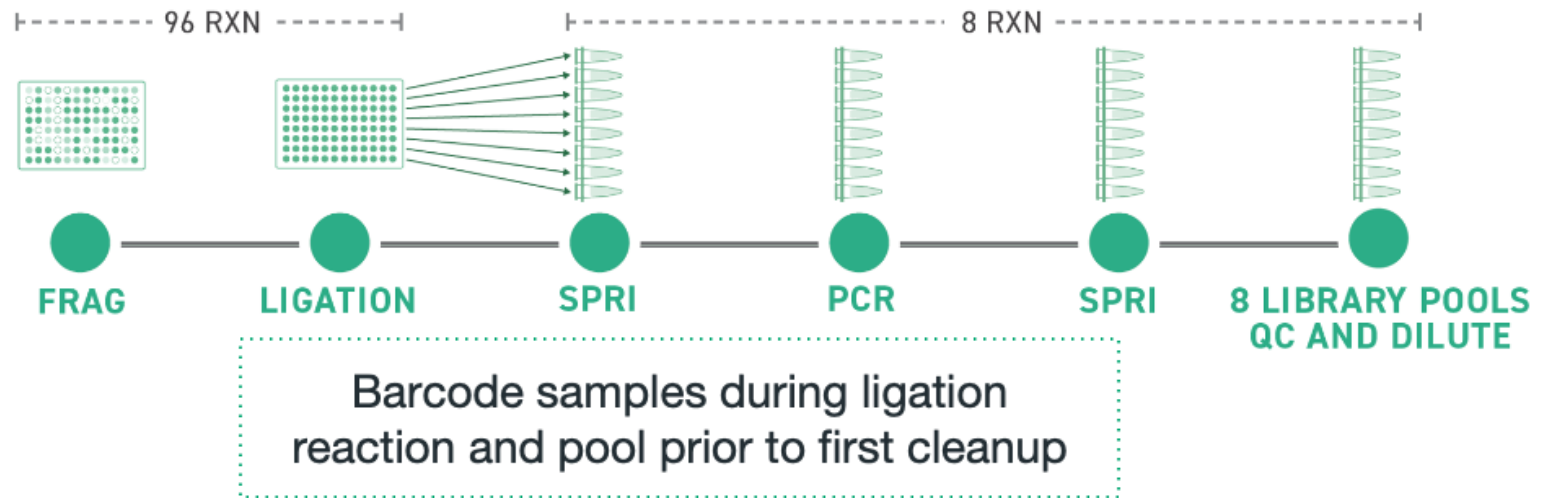
FlexPrep UHT workflow emphasizes auto-normalization

Typical enzymatic fragmentation library prep for 96 samples

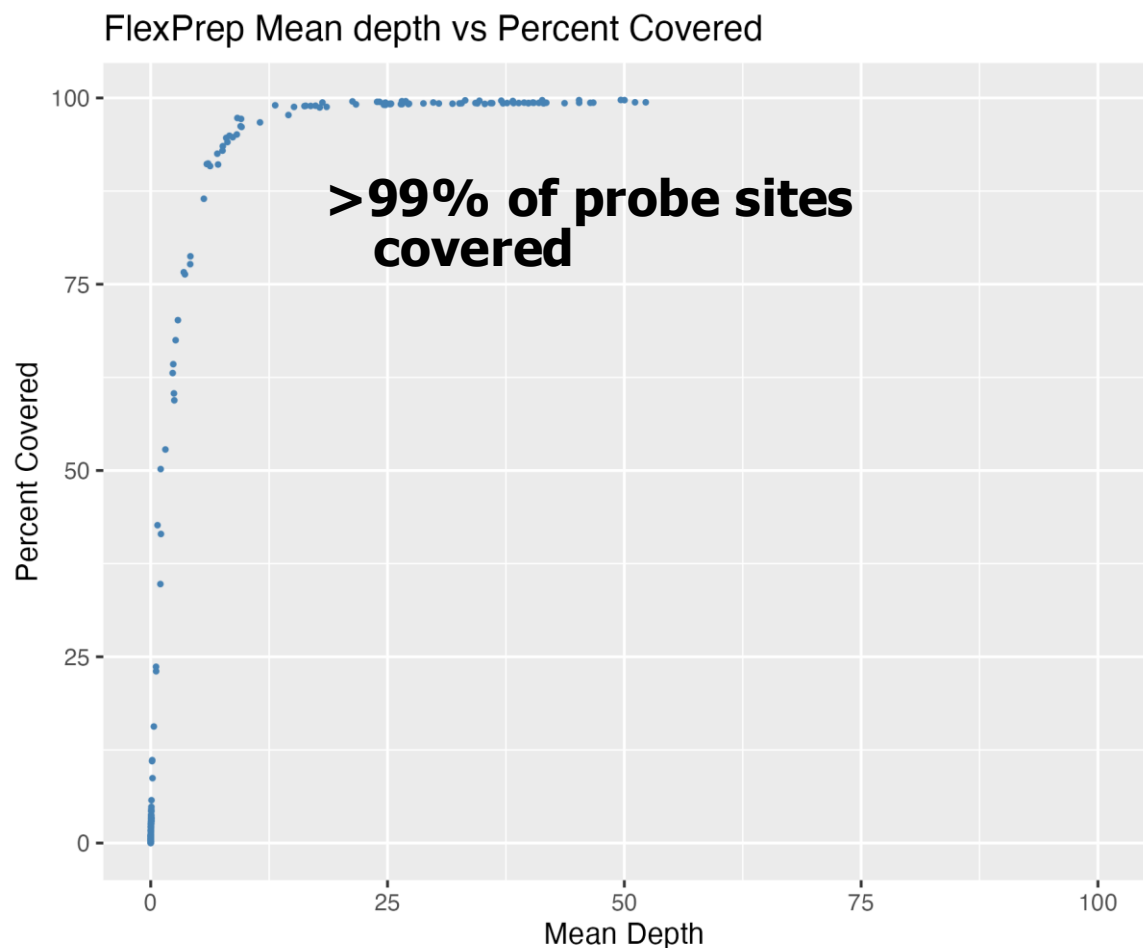


FlexPrep UHT library prep for 96 samples

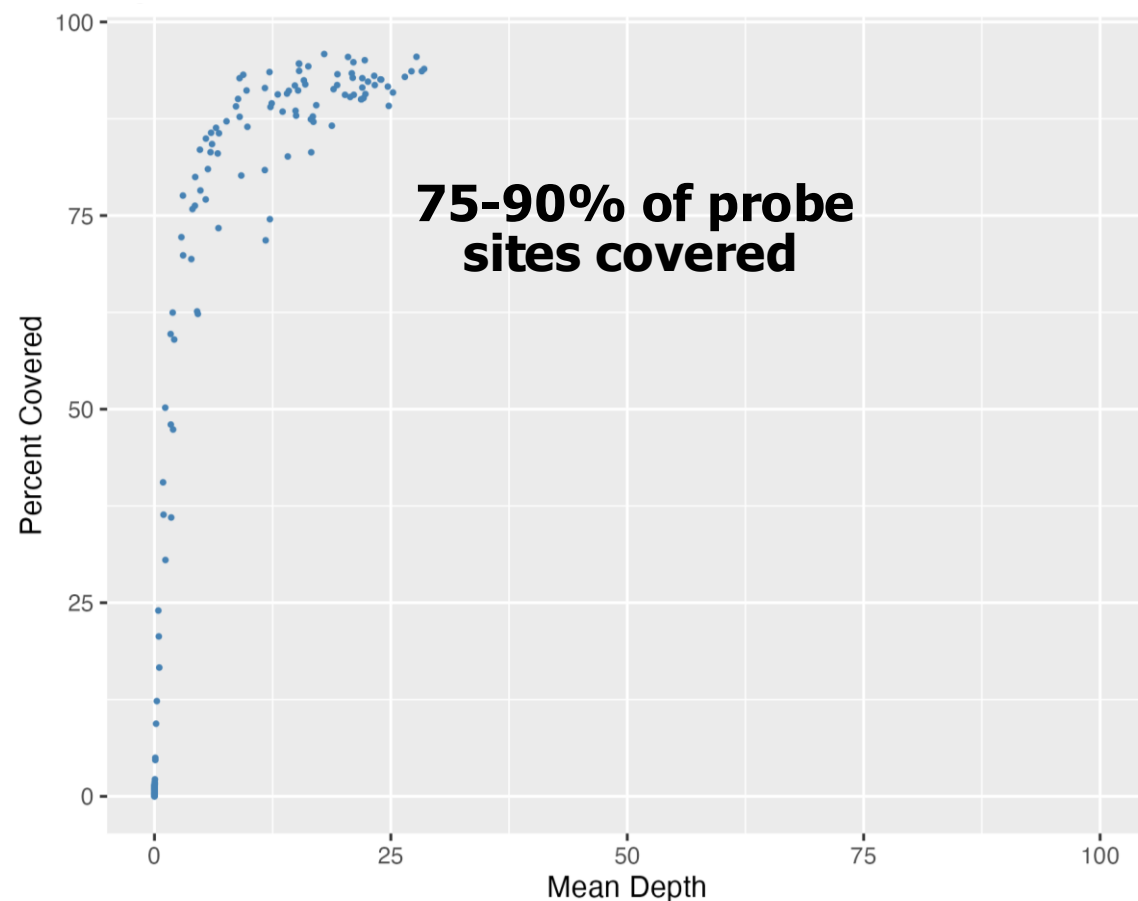
Normalization by Ligation (NBL) technology eliminates upfront quant and normalization



Library complexity makes enrichment sequencing highly accurate



FlexPrep



**Competitor
Prep**

The young scientists who make an impact with FlexPrep



Zack Myers

Develops algorithms to discover genes from scaled sequencing data

Hallie Wright

Uses genomics to improve finger millet for east Africa

Ashmita Upadhyay

Develops AI models to use scaled sequencing to improve crop varieties

The young scientists who make an impact with FlexPrep



Catherine Davis
Supports breeding programs
all over the world



Justin Vaughn
Translates pangenomes
into genotypes for gene
discovery



Ambreal White
Can prepare more than 100
species of plants and animal
DNA for library prep

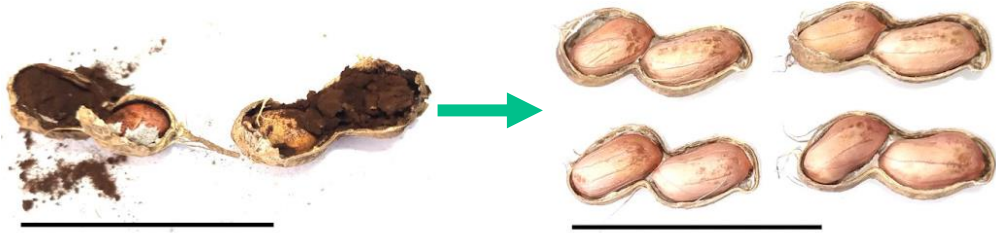


Ethan Thompson
Discovers insights that
transform agricultural
industries

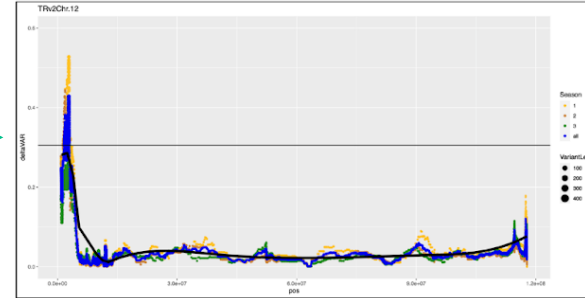
Genomics protects our food supply

Scaled genomics helps protect our food supply

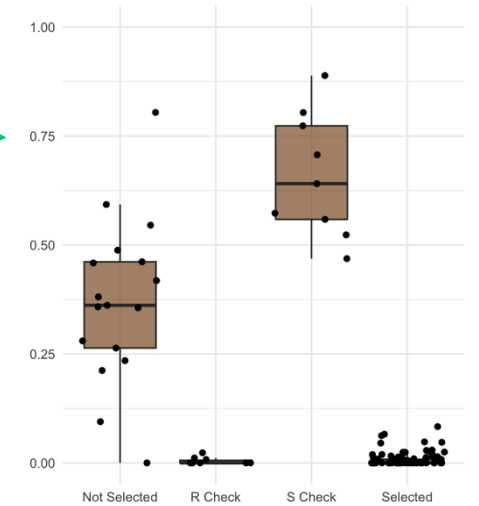
Smut is a major threat to global peanut supply chain



Mapping resistance



Pangenomics and gene discovery



Accelerated cultivar development



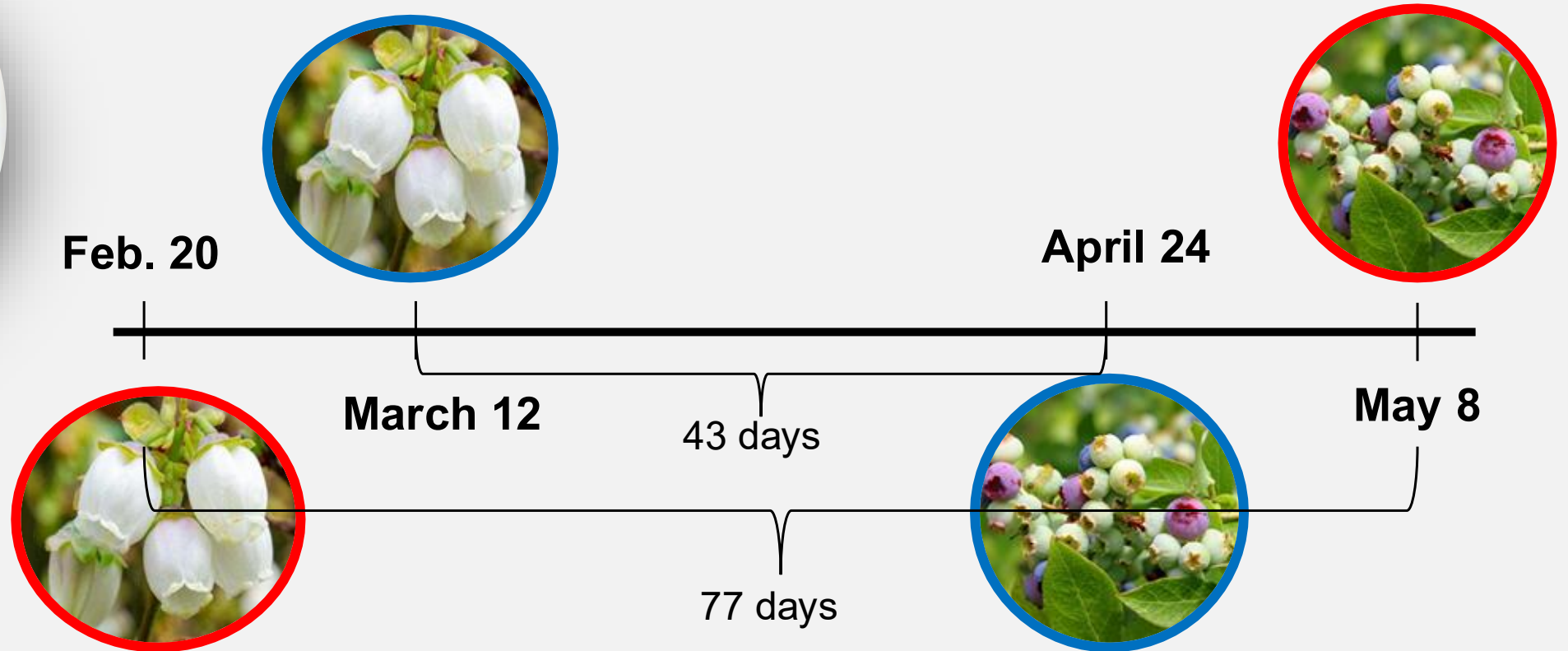
Resistant peanuts have been developed and released in North and South America **in just 3 years**

Scaled sequencing helps protect blueberry production



Kendall Lee
Transforming
blueberry breeding
with scaled
sequencing

-  = favorable allele combo
-  = unfavorable allele combo



Scaled sequencing helps protect the future of sorghum germplasm and improvement



Kelly Goode

Executing sequencing
of hundreds of
thousands of samples



We have teamed with Doreen Ware, PhD
to create a digital backup of the entire
45,000 sorghum collection

Scaled genomics trains the next generation of scientists and impact makers



Yanbing wang
Improving peanuts in
collaboration with
high schools

WIREGRASS PEANUT PROJECT

The Wiregrass Peanut Project is a collaborative effort between HudsonAlpha Institute for Biotechnology and Wiregrass. It focuses on improving peanuts through genomics. The project involves high school students and researchers working together in a laboratory setting. The photos show students and researchers engaged in various activities, including working with lab equipment and discussing the project.

WIREGRASS
**Peanut
Project**

HUDSONALPHA
INSTITUTE FOR BIOTECHNOLOGY
WIREGRASS



Thank you

OncoDNA

Koenraad Eycken

CPO - Sales & Business Development



Christophe Van Huffel

Co-Founder & CSO - OncoRNA



The challenge is real



“As oncologists, our mission is to deliver the right treatment to the right patient at the right time”

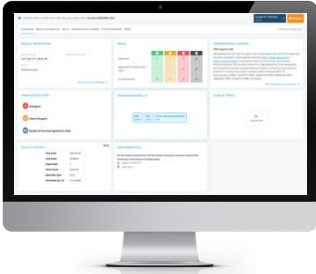
Dr. Cheng Boon,
UK registered oncologist, private and NHS

OncoDNA – Making tumor profiles actionable



Improve all patients' health
through precision care.

OncoDNA – Making tumor profiles actionable



CANCER TYPE
Thyroid cancer

PATIENT ID
OncoDEEP Kit Demo 4

VALIDATED ON
Nov, 25 2024

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OncoDNA

THE GENOMIC THERAPEUTIC COMPANY

Analysis Report

Patient

Cancer Type: Thyroid cancer

KEY GENOMIC ALTERATIONS*

None

GENOMIC SIGNATURES

TMB: Low (1.67 Mut/Mb) | MSI: Stable (8.81%) | HRD: Negative (29.0)

ADDITIONAL BIOMARKERS

CCDC6:RET Fusion: YES

RELEVANT GENES WITH NO ACTIONABLE ALTERATIONS**

BRAF

* Only variants classified as pathogenic and likely pathogenic are reported here. The full list of identified variants is available in the report.

** Cancer type specific

THERAPIES ASSOCIATED WITH CLINICAL BENEFIT

Drug Name	Class	Status	Indicated for
Associated Biomarker: CCDC6:RET Fusion: YES			
Pralsetinib	RET inhibitors	FDA / NCCN / ESMO / EMA approved	patient's tumor type
Selpercatinib	RET inhibitors	FDA / NCCN / ESMO / EMA approved	patient's tumor type
alecinib	Receptor tyrosine kinase inhibitors	Approved for other	other tumor types

CLINICAL TRIALS

Name	Phase	Countries	NCT ID
A Study of Selpercatinib (LOXO-292) in Participants With Advanced Solid Tumors, RET Fusion-Positive Solid Tumors, and Medullary Thyroid Cancer (LIBRETTO-001)	Phase 2	FR GB HK IL SG AU CA CH DE DK ES US IT JP KR TW	NCT03157128
CRAFT: The NCT-PMO-1602 Phase II Trial	Phase 2	DE	NCT04551521
Tumor Agnostic Precision Immuno-Oncology and Somatic Targeting Rational for You (TAPISTRY) Platform Study	Phase 2	FR GB HK IL NL SG AU BE BR CA CH CN DE DK ES US IT JP KR NZ PL PR PT RU TW ZA	NCT04589845

CLINICAL FORM

Metastasis	-
Previous medication	-
Comorbidities	-
Concomitant medication	-
Macro-dissection ?	-

(Continues on next page)

OncoKDM™

ONCOKDM VERSION: 24.0.22

CANCER TYPE
Thyroid cancer

PATIENT ID
OncoDEEP Kit Demo 4

VALIDATED ON
Nov, 25 2024

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Gene	Cat.	Exon	Var. Freq. / Copy Nb	cDNA	AA	Drugs related to gene	Drugs related to patient
CDKN2A	LOH	-	1.00	-	-		

BIOLOGICAL IMPACT: LIKELY PATHOGENIC

This variant is associated with the loss of one copy of CDKN2A, while the remaining copy could be non-functional. The CDKN2A gene encodes the tumor suppressors p16INK4 and p14ARF (PMID:24449825). Therefore, this variant produces truncated proteins leading to a loss of function of the proteins.

THERAPEUTICAL IMPACT: TIER III

There are currently no drugs that directly target loss of CDKN2A. Because p16INK4a is known to inhibit Cdk4, tumors with CDKN2A alterations may be sensitive to Cdk4/6 inhibitors (PMID:7606716; PMID:9529249). Clinical trials of Cdk4/6 inhibitors, including PD-0332991, BAY1000394, and LEE011 are currently underway in multiple tumor types (PMID:21610706). p14ARF has been reported to function as a tumor suppressor through stabilization and activation of p53 through Mdm2 inhibition (PMID:16869746; PMID:20549699). However, the relevance of those drugs is unknown because the impact of this CDKN2A alteration on p14ARF function has not been characterized. Moreover the loss of function of the other copy to the gene should be confirmed by NGS result.

INCIDENTAL FINDING

This variant has not been associated with any inherited disease.

Gene	Cat.	Exon	Var. Freq. / Copy Nb	cDNA	AA	Drugs related to gene	Drugs related to patient
FANCG	LOH	-	1.00	-	-		

BIOLOGICAL IMPACT: LIKELY PATHOGENIC

This variant is associated with the loss of one copy of FANCG, while the remaining copy could be non-functional. Hence, it could lead to a probable loss of function of the protein.

THERAPEUTICAL IMPACT: TIER III

No therapeutic impact has been associated with this variant. However, the loss of function of the other allele should be confirmed by the NGS results.

INCIDENTAL FINDING

This variant is associated with Fanconi anemia (<http://www.uniprot.org/uniprot/O15287>).

Gene	Cat.	Exon	Var. Freq. / Copy Nb	cDNA	AA	Drugs related to gene	Drugs related to patient
KEAP1	LOH	-	1.00	-	-		

BIOLOGICAL IMPACT: LIKELY PATHOGENIC

This variant is associated with the loss of one copy of KEAP1, while the remaining copy could be non-functional. An abnormality in the Nrf2-Keap1 system may facilitate the growth of cancer cells because oxidative and electrophilic stresses cause many diseases, including cancer. The activation of Nrf2 through reduced Keap1 activity, either through a nonsense variant leading to a loss-of-function, provides growth advantages to lung cancer cells under homeostatic conditions. Indeed, there is a high incidence/frequent occurrence of loss of Keap1 function in patient with lung cancer and this loss of function enhanced the nuclear accumulation of Nrf2 and elevated the expression of antioxidative and antioxidant stress enzymes and drug efflux pumps, suggesting cancer cells with weakened. Keap1 acquire multiple advantages for proliferation (PMID:18316592).

THERAPEUTICAL IMPACT: TIER III

The loss of function of the other allele should be confirmed by the NGS results.

Activation of the Nrf2 pathway is critical for resistance to chemotherapeutic agents (PMID:25014534; PMID:25337579). At this moment there is no Nrf2 inhibitors FDA approved or available through clinical trials. By screening natural products, data identified an antineoplastic compound brusatol as an Nrf2 inhibitor that enhances the chemotherapeutic efficacy of cisplatin (PMID:21205897). No therapeutic impact has been associated with this variant.

OncoKDM™

ONCOKDM VERSION: 24.0.22

CANCER TYPE
Thyroid cancer

PATIENT ID
OncoDEEP Kit Demo 4

VALIDATED ON
Nov, 25 2024

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DETECTED VARIANTS LIST

Gene	Cat.	Var. Freq. / Copy Nb	cDNA	AA	Biological Impact	Therapeutical Impact	Incidental Findings	Depth
CDKN2B	CNV LOSS	0.00	-	-	Pathogenic	Tier III	NO	-
CDKN2A	LOH	1.00	-	-	Likely Pathogenic	Tier III	NO	-
FANCG	LOH	1.00	-	-	Likely Pathogenic	Tier III	YES	-
KEAP1	LOH	1.00	-	-	Likely Pathogenic	Tier III	NO	-
PTEN	LOH	1.00	-	-	Likely Pathogenic	Tier III	NO	-
RAD54L	LOH	1.00	-	-	Likely Pathogenic	Tier III	NO	-
RET	SNV	32.63%	NM_020975.6:c.2428G>A	p.(G810S)	Likely Pathogenic	Tier III	NO	377
STK11	LOH	1.00	-	-	Likely Pathogenic	Tier III	YES	-
ZFXH3	INS	19.19%	NM_006885.4:c.3255_3256dup	p.(C1086Sfs*26)	Likely Pathogenic	Tier III	NO	615
ZRSR2	DEL	24.44%	NM_005089.4:c.50del	p.(K175fs*6)	Likely Pathogenic	Tier III	NO	487
BRAF	WT	0.00	-	-	Wild type	Tier IA	NO	-
AURKA	SNV	99.68%	NM_198437.3:c.169A>G	p.(I57V)	VUS	Tier III	NO	940
CASP8	SNV	59.10%	NM_001080125.2:c.1069A>G	p.(I357V)	VUS	Tier III	NO	802
CYP2D6	SNV	20.26%	NM_000106.6:c.1457G>C	p.(S486T)	VUS	Tier III	NO	311
CYP2D6	SNV	79.86%	NM_000106.6:c.1453G>C	p.(V485L)	VUS	Tier III	NO	293
IDH2	SNV	20.62%	NM_002168.4:c.47G>A	p.(G16D)	VUS	Tier III	NO	97
MET	DEL	9.58%	NM_000245.4:c.3029-721del	-	VUS	Tier III	NO	689
MET	SNV	36.11%	NM_000245.4:c.3259+845G>T	-	VUS	Tier III	NO	767
MET	INS	6.38%	NM_000245.4:c.3259+969dup	-	VUS	Tier III	NO	564
MET	SNV	35.27%	NM_000245.4:c.3260-111G>C	-	VUS	Tier III	NO	1049

(Continues on next page)

OncoKDM™

ONCOKDM VERSION: 24.0.22

OncoDNA at a glance

100

collaborators
in **6** countries

45

distributors
active on all continents

Global presence

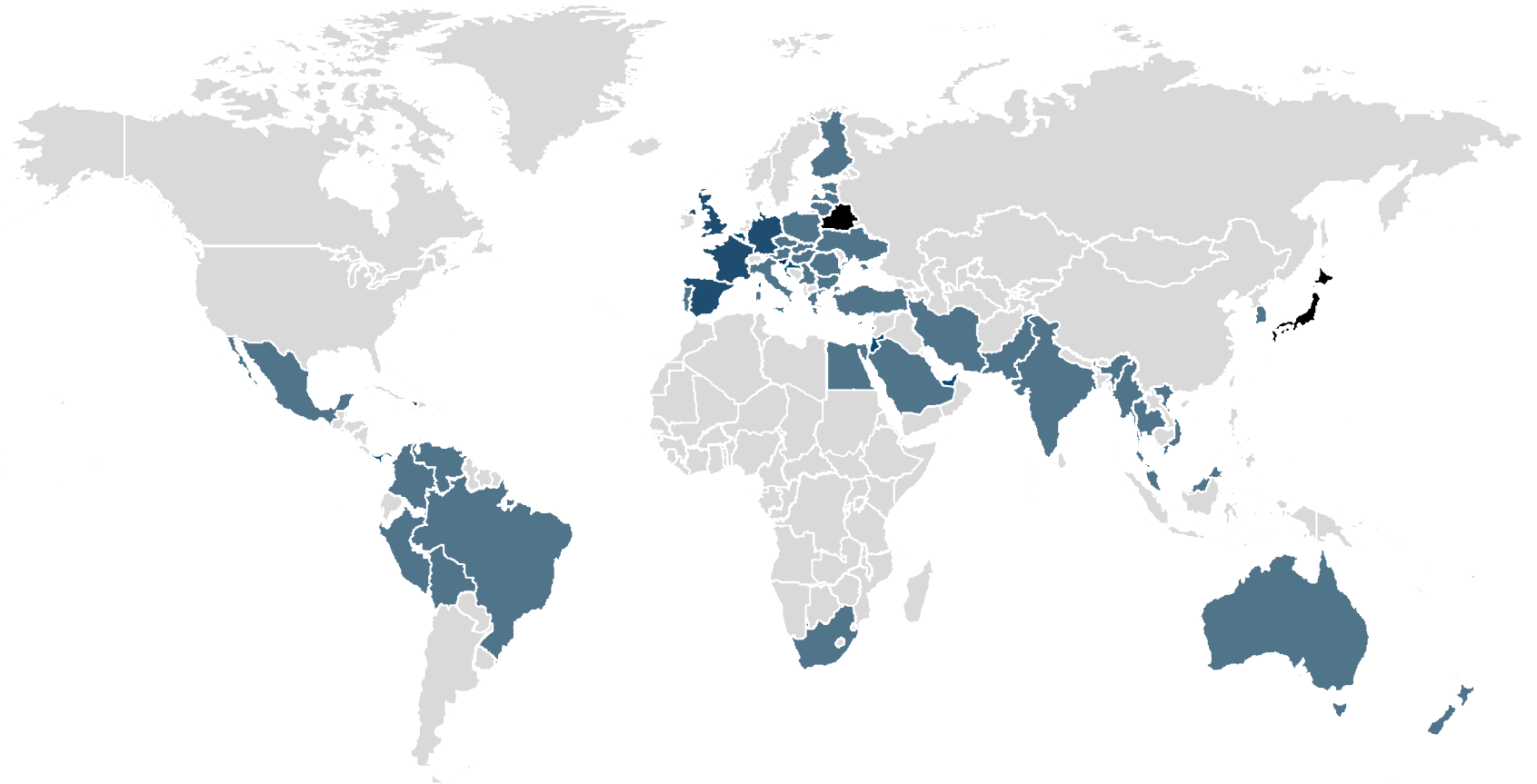


Local presence

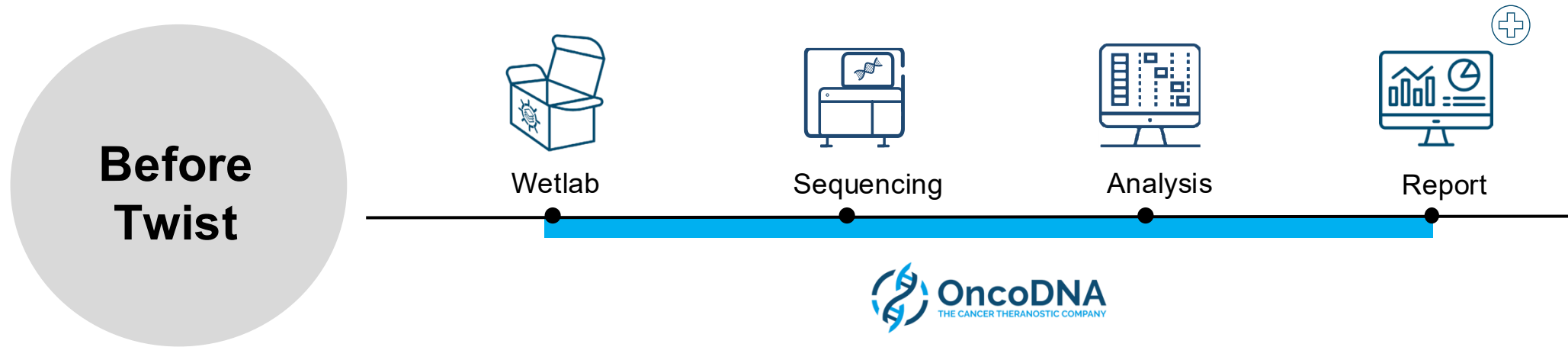


Distribution Network

Founded in **2012**, over **100,000 tests** performed



Twist as a catalyst for growth



Twist makes the difference

Quality & reliability

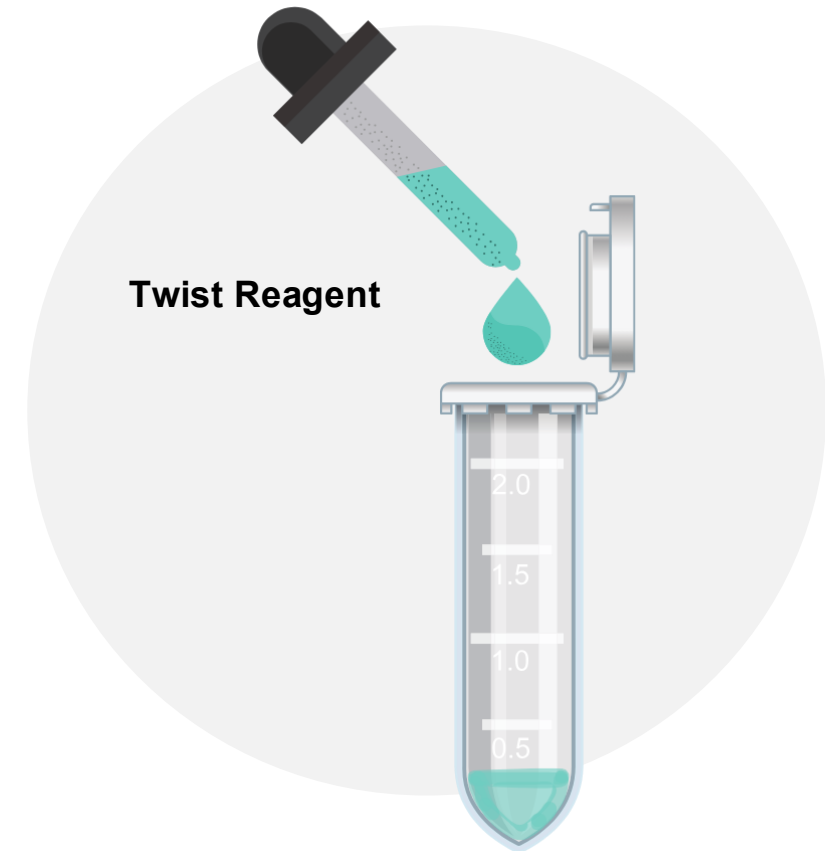
- ✓ High-quality sequencing data
- ✓ Reliable and interpretable results

= **Report with recommendations based on reliable data**

Throughput & cost efficiency

- ✓ More samples per run
- ✓ Lower cost per sample

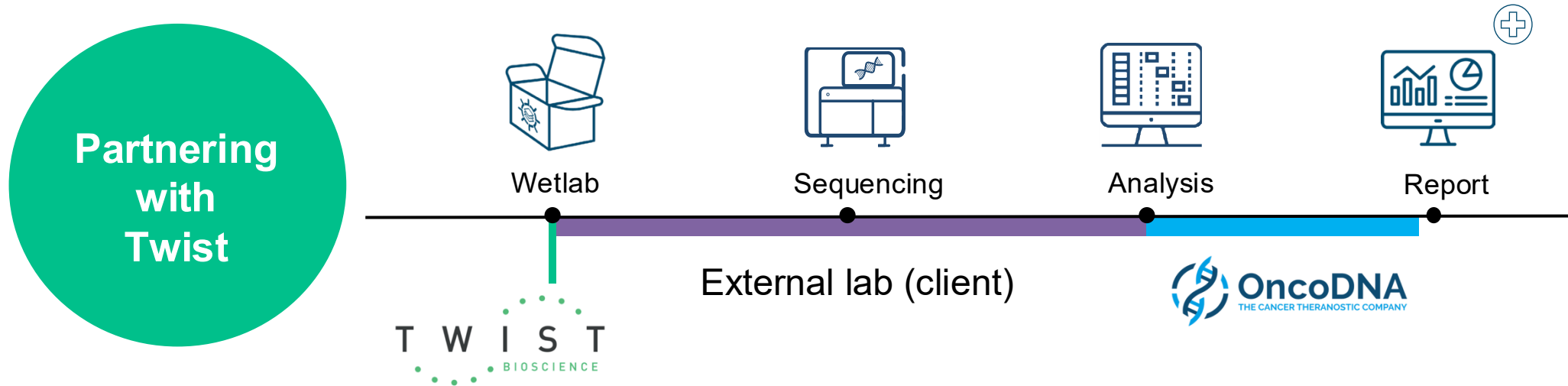
= **More patients analyzed**



Move to Twist capture based technology allows us to do better DNA fingerprinting and better characterization of patient DNA

Twist as a catalyst for growth

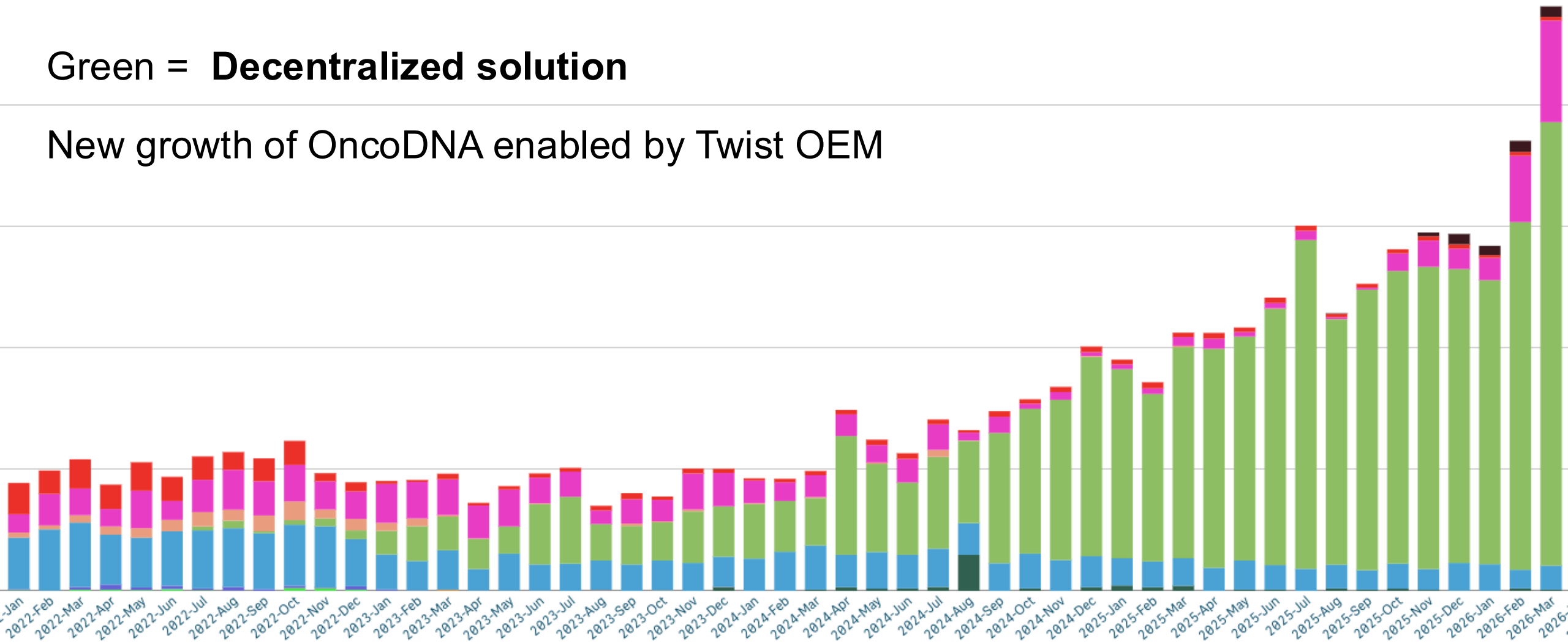
Decentralized workflow



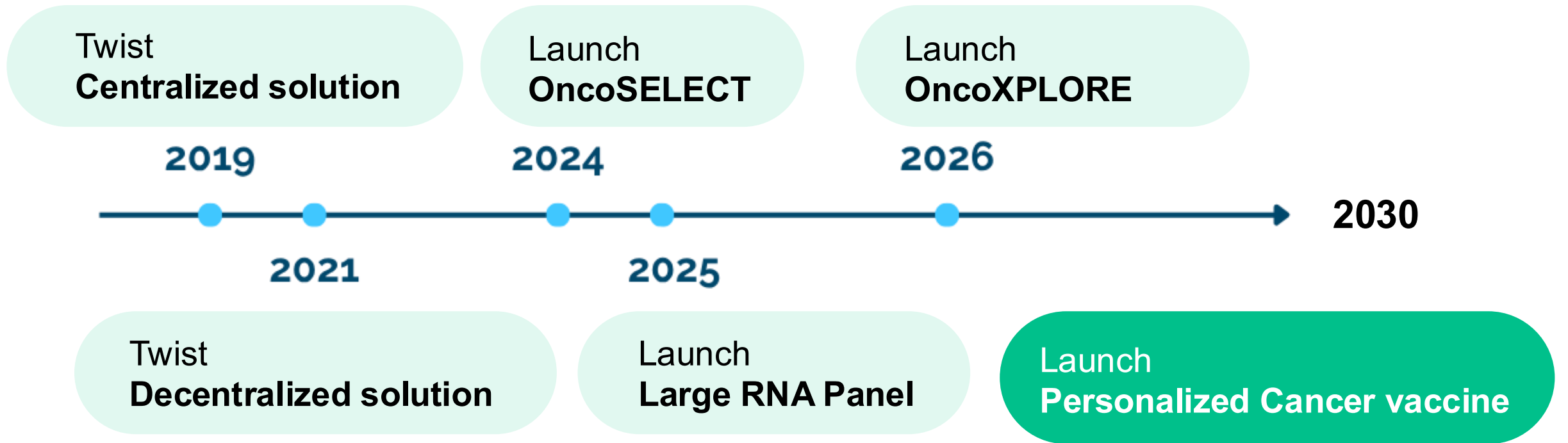
Switch in business: Decentralized model

Green = Decentralized solution

New growth of OncoDNA enabled by Twist OEM



Successful collaboration with Twist



OncoSELECT® Gene Panel

OncoSELECT is suited for solid cancer patients' testing, and covers many alterations associated with targeted/ hormonal therapies

Total : 74 Genes: SNVs / Indels / CNVs/ TERT promotor / Intron aberrations
(*translocations, unusual splicing*) / HRR

Optimised process to achieve **greater sensitivity and specificity**

LOD: 0.25 % AF

SNV sensitivity: 99 %

INDEL sensitivity: 95.6 %

SNV and INDEL specificity: > 99.9 %

Whole CDSs

ARID1A	CHEK2	NBN
ATM	FANCA	NF1
ATR	FANCL	PALB2
BARD1	FGFR1	PTEN
BRCA1	FGFR2	RAD51C
BRCA2	FGFR3	RAD51D
BRIP1	H3C2	RAD54L
CDK12	KEAP1	STK11
CDKN2A	MLH1	
CHEK1	MRE11A	

Hotspots

AKT1	GNAQ	NTRK1
ALK	GNAS	NTRK2
AR	H3F3A	NTRK3
ARAF	H3F3B	PDGFRA
BRAF	HRAS	PIK3CA
CTNNB1	IDH1	POLE
DICER1	IDH2	RAD51B
EGFR	KIT	RET
ERBB2	KRAS	ROS1
ERBB4	MAP2K1	TERT (pTERT)
ESR1	MET	TP53
FOXL2	MYOD1	
GNA11	NRAS	

Fusions

ALK	FGFR2	NTRK2
BRAF	FGFR3	NTRK3*
CD74	KIF5B	RET
EGFR	KIT	ROS1
EML4	MET	SDC4
ETV6	NPM1	SLC34A2
EZR	NRG1	
FGFR1	NTRK1	

Unusual splicing genes

BRCA1
BRCA2
MET

*NTRK3 fusion is detected via its common rearrangement partner ETV6

OncoFOLLOW workflow



1 Solid biopsy & variant selection



OncoDEEP[®]
by OncoDNA



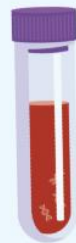
OncoDEEP WES[®]
by OncoDNA

2 Custom reagent design based on variant selection

Alteration Type	Gene	Location	Stage	Number of Samples
Deletion	CDKN2A	9p21.3	AD	1,413/1,460 (96%)
Amplification	CDKN2A	12p13.31	AD	1/1,460 (0%)
Deletion	CDKN2A	9p21.3	AD	1,401/1,413 (99%)
Amplification	CDKN2A	12p13.31	AD	1/1,413 (0%)
Deletion	CDKN2A	9p21.3	AD	1,399/1,401 (99%)
Amplification	CDKN2A	12p13.31	AD	2/1,401 (0%)
Deletion	CDKN2A	9p21.3	AD	1,377/1,388 (99%)
Amplification	CDKN2A	12p13.31	AD	11/1,388 (0%)
Deletion	CDKN2A	9p21.3	AD	1,362/1,377 (99%)
Amplification	CDKN2A	12p13.31	AD	15/1,377 (1%)
Deletion	CDKN2A	9p21.3	AD	1,352/1,362 (99%)
Amplification	CDKN2A	12p13.31	AD	10/1,362 (0%)
Deletion	CDKN2A	9p21.3	AD	1,347/1,352 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,352 (0%)
Deletion	CDKN2A	9p21.3	AD	1,343/1,347 (99%)
Amplification	CDKN2A	12p13.31	AD	4/1,347 (0%)
Deletion	CDKN2A	9p21.3	AD	1,338/1,343 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,343 (0%)
Deletion	CDKN2A	9p21.3	AD	1,333/1,338 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,338 (0%)
Deletion	CDKN2A	9p21.3	AD	1,328/1,333 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,333 (0%)
Deletion	CDKN2A	9p21.3	AD	1,323/1,328 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,328 (0%)
Deletion	CDKN2A	9p21.3	AD	1,318/1,323 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,323 (0%)
Deletion	CDKN2A	9p21.3	AD	1,313/1,318 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,318 (0%)
Deletion	CDKN2A	9p21.3	AD	1,308/1,313 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,313 (0%)
Deletion	CDKN2A	9p21.3	AD	1,303/1,308 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,308 (0%)
Deletion	CDKN2A	9p21.3	AD	1,298/1,303 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,303 (0%)
Deletion	CDKN2A	9p21.3	AD	1,293/1,298 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,298 (0%)
Deletion	CDKN2A	9p21.3	AD	1,288/1,293 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,293 (0%)
Deletion	CDKN2A	9p21.3	AD	1,283/1,288 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,288 (0%)
Deletion	CDKN2A	9p21.3	AD	1,278/1,283 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,283 (0%)
Deletion	CDKN2A	9p21.3	AD	1,273/1,278 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,278 (0%)
Deletion	CDKN2A	9p21.3	AD	1,268/1,273 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,273 (0%)
Deletion	CDKN2A	9p21.3	AD	1,263/1,268 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,268 (0%)
Deletion	CDKN2A	9p21.3	AD	1,258/1,263 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,263 (0%)
Deletion	CDKN2A	9p21.3	AD	1,253/1,258 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,258 (0%)
Deletion	CDKN2A	9p21.3	AD	1,248/1,253 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,253 (0%)
Deletion	CDKN2A	9p21.3	AD	1,243/1,248 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,248 (0%)
Deletion	CDKN2A	9p21.3	AD	1,238/1,243 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,243 (0%)
Deletion	CDKN2A	9p21.3	AD	1,233/1,238 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,238 (0%)
Deletion	CDKN2A	9p21.3	AD	1,228/1,233 (99%)
Amplification	CDKN2A	12p13.31	AD	5/1,233 (0%)



3 Liquid biopsy & patient variant monitoring



X12



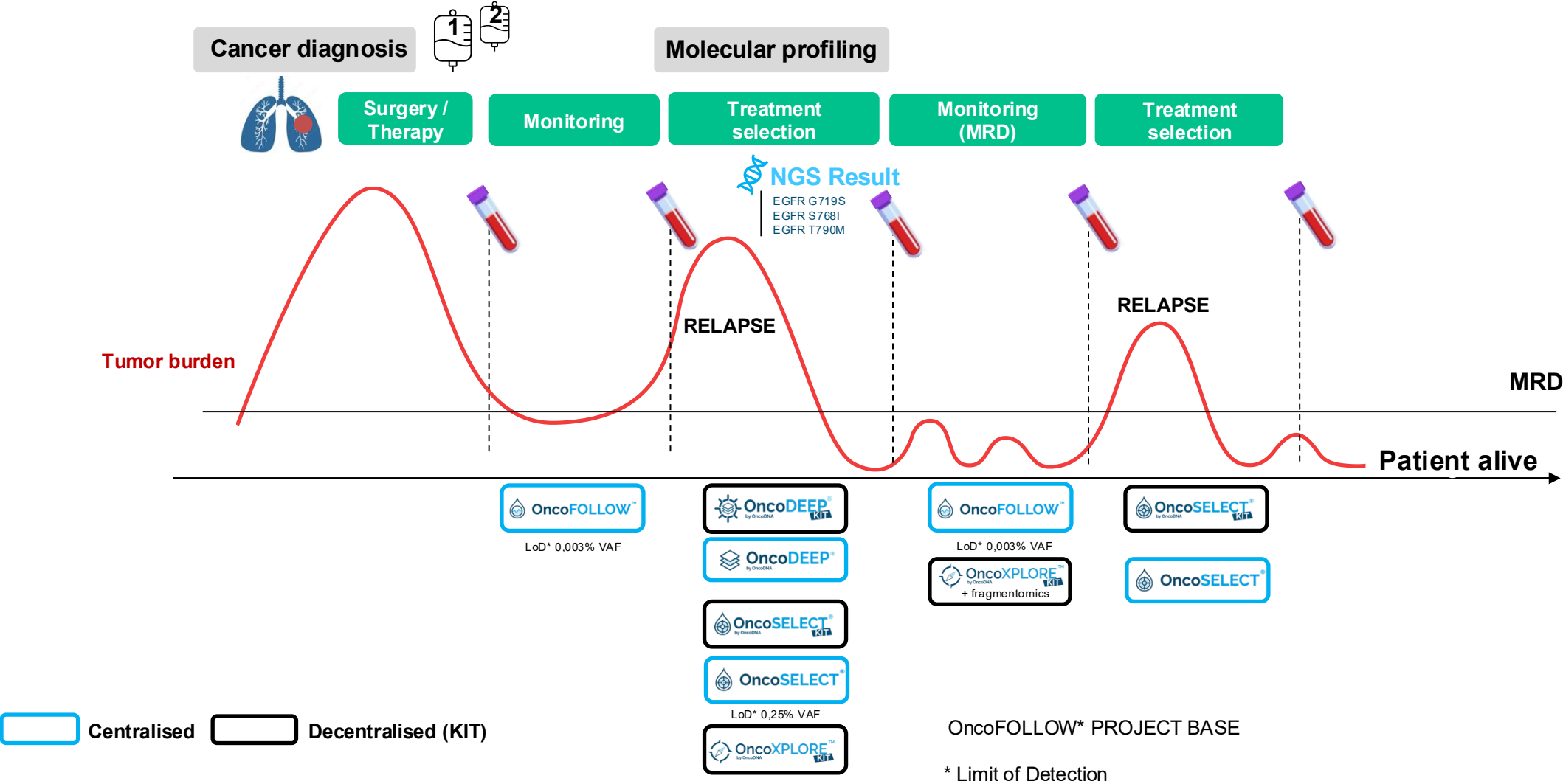
OncoFOLLOW™
by OncoDNA **KIT**



4 Results interpretation



Solutions that empower oncologist to select the right treatment at the right time regardless to the lab expertise – based on Twist technology



OncoRNA – A solution for patients for whom there is no treatment available

A personalized anticancer vaccine in 3 weeks



In collaboration with:

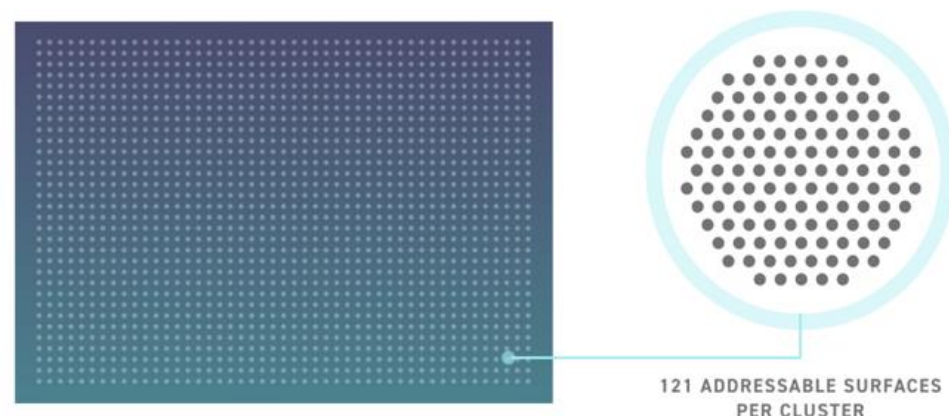


Siyuan Chen

Chief Technology Officer at
Twist Bioscience

Twist: the only technology that unlocks this

Long-oligo pool synthesis — unavailable anywhere else



Twist Bioscience chip — 121 individually addressable synthesis clusters per pool

Each cluster synthesizes a unique oligo sequence up to 300 nt. No competitor matches this.

01

Long oligos — up to 300 nt

Standard providers cap at 120 nt, requiring 6+ oligos per 500 bp with multiple error-prone assembly events. TWIST encodes a full neoantigen in just TWO long oligos — one clean assembly. Cleaner. Faster. Cheaper.

02

121-pool format = personalized vaccine

High tumor mutation burden (TMB) yields 100–400 actionable neoantigens. TWIST's 121-cluster chip maps perfectly to this clinical need: one synthesis run = one patient's complete personalized mRNA vaccine template.

03

No practical limit on pool diversity

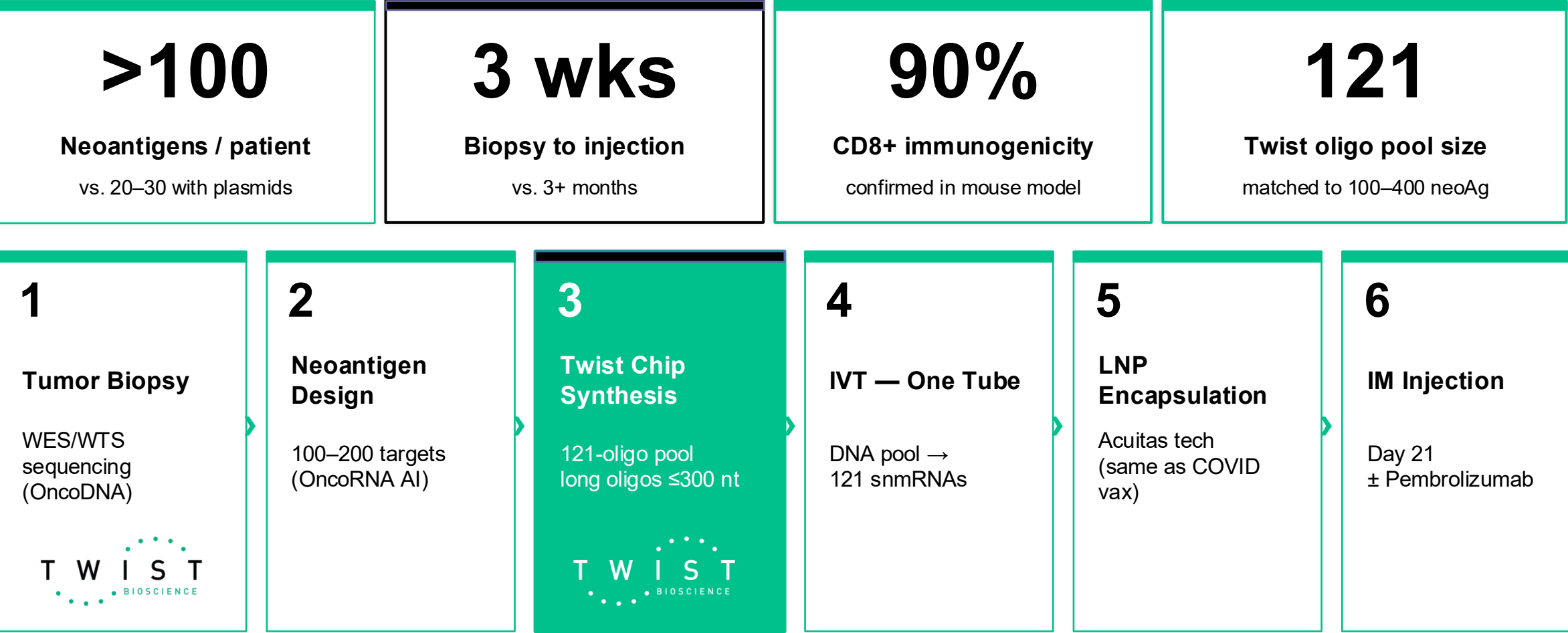
The scale of TWIST chip synthesis means virtually unlimited unique sequences per pool. Competitors using standard oligo synthesis cannot replicate this format at any price point.

Twist is not just a supplier. Twist is the reason this technology exists.

OncoRNA was specifically designed around the Twist chip format — 121 oligos, long sequences, pool synthesis at therapeutic grade.

OncoRNA: what Twist chip technology makes possible

The 6-step pipeline — Step 3 is the Twist advantage



Step 3 is the key — without Twist long-oligo pool synthesis, steps 4–6 cannot exist at this scale or cost.

The strategic partnership at the heart of the next cancer vaccine breakthrough



Proof that Twist chip synthesis enables what nothing else can.

- ✓ **>100 neoantigens**
vs. 20–30 for all plasmid-based competitors
- ✓ **3-week TAT**
vs. 3+ months — the only clinically viable timeline
- ✓ **90% CD8+ response**
pre-clinical proof with TWIST-synthesized pool
- ✓ **€31M EU grant**
non-dilutive · scientific & commercial validation

The DNA synthesis infrastructure behind the next generation of personalized medicine

NASDAQ: TWST
Market cap ~\$3 Billion



Thank you for being part of the mission





Thank you

Agenda

- Welcome
 - Tour
 - DSPS Strategy Session
 - Fireside Chat with Dr. Frances Arnold
 - Customer Presentations
-

Lunch

- NGS Strategy Session
- Customer Presentations
- Enzymes at Twist
- **Financial Overview**
- Culture
- Q&A

Adam Laponis

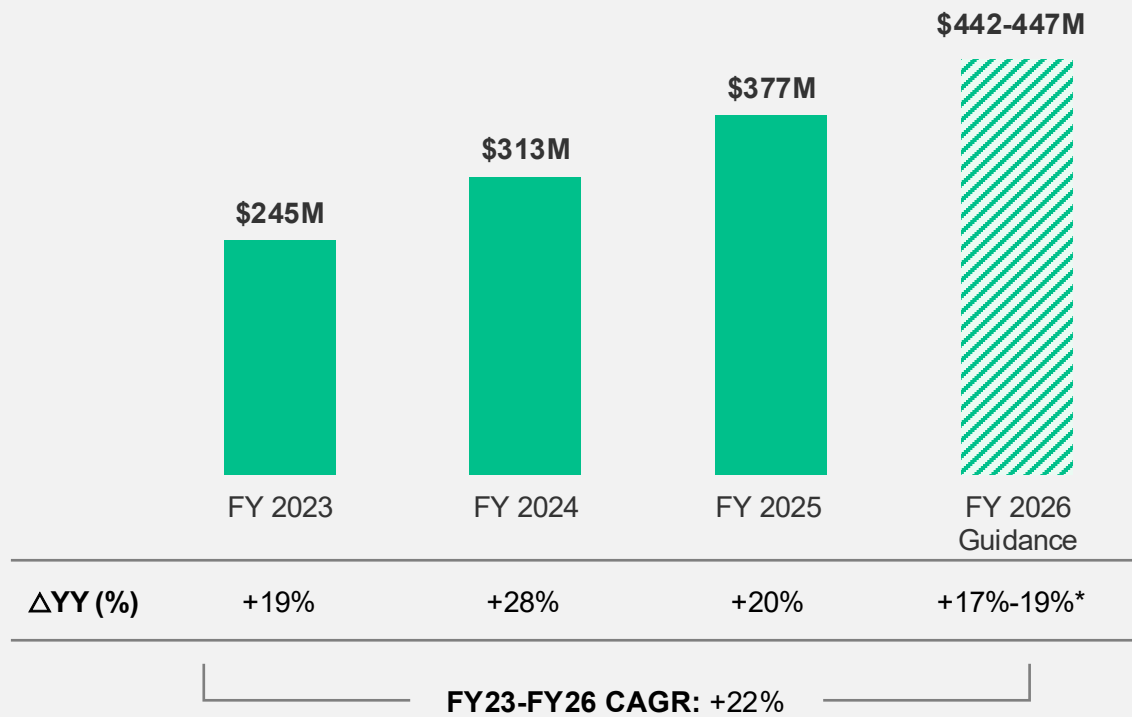
Chief Financial Officer

Financial and Operational Overview

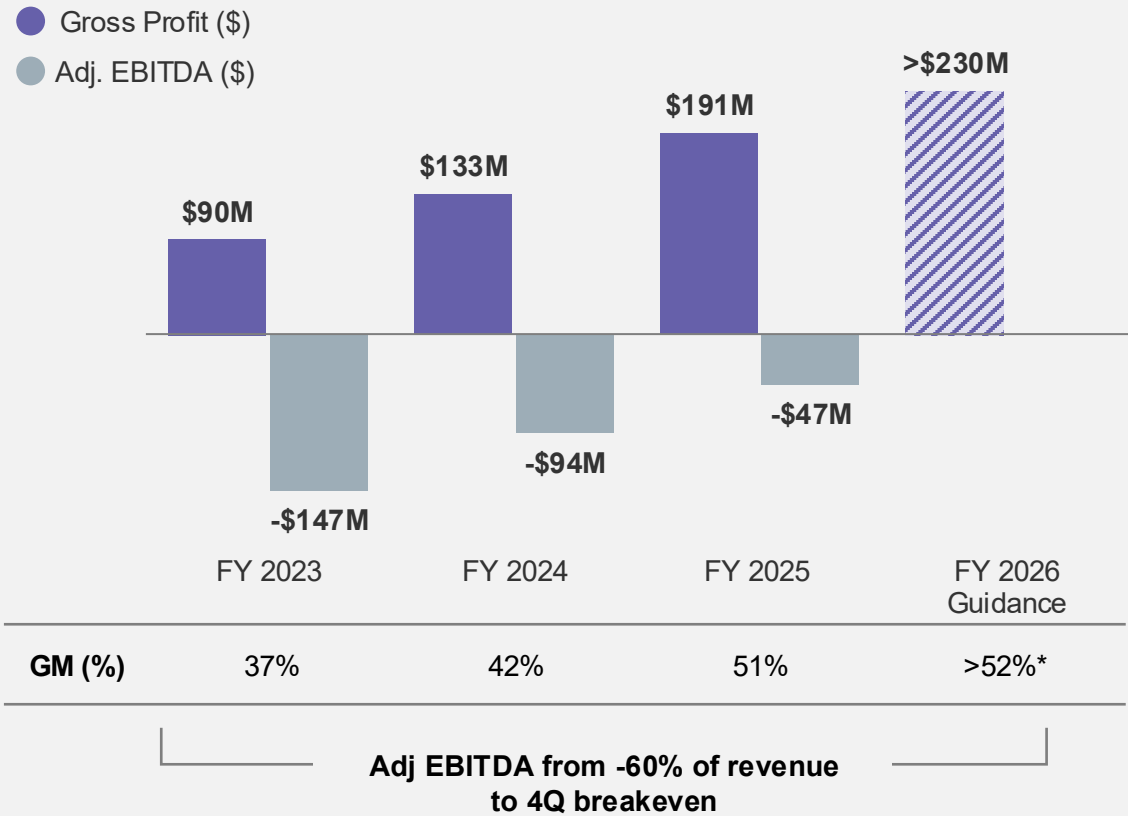


Twist FY23 through Today: ‘Platform Build-Out’

Revenue



Gross margin & adjusted EBITDA**



FY23-FY26 Twist Revenue CAGR of +22% vs. global peers broadly ~flat

* As of financial guidance provided on May 4, 2026.
**See page 233 or Adjusted EBITDA Reconciliation.

FY27 to FY31: Profitable Growth Inflection Point

Strong growth trajectory
to more than double
revenue from
organic growth



Adjusted EBITDA breakeven
Q4 FY26 and beyond

Self-funded, targeted
re-investment to power NPI machine

Line of sight to **long term GM%** above **60%**
as business grows and matures

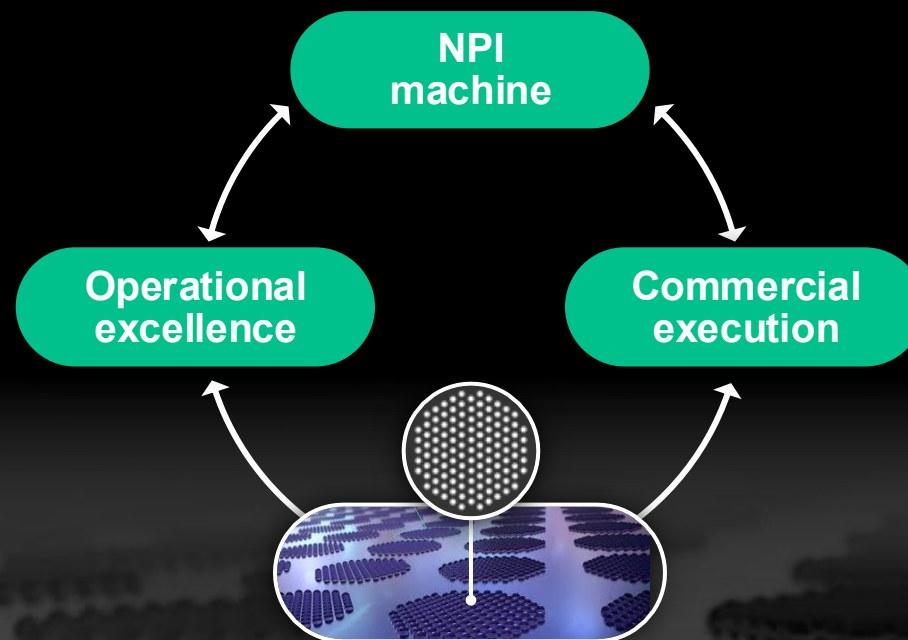
Significant operating leverage and clear
path to **>\$1B per year of revenue capacity**
with sustaining levels of CapEx investment

DSPS drivers

- Continuing broader workflow integration, enabled by **expanding product menu, customization and scale**
- **Increasing custom technical/complex capabilities** and services (e.g., AI-enabled discovery, siRNA, bispecifics, mRNA, GMP for nucleic acid therapeutics, special apps)
- Leveraging **automation** to enable rapid scale of new products alongside emerging market demand (e.g., antibody characterization lab)
- Design-Build-Test-Learn **flywheel** enables customers of all sizes while expanding Twist's wallet share over time

Multi-Year Growth Outlook and SAM Expansion

We continue loading **more on the same chip**



NGS application drivers

- Key supplier for large and growing markets such as liquid biopsy for oncology Dx and rare disease drives **robust validation pipeline**
- Early innings of commercial Dx contributions, with **sticky, recurring revenue streams**
- MRD applications scaling to material revenue; **uniquely positioned esp. for tumor-informed MRD**
- Broad sequencing cost reductions **unlocking new markets**, geographies, applications – positioned to benefit from NGS market expansion

Revenue Growth, Automation and Continuous Process Improvements Enable GM expansion



From FY23 to H1 FY26
Gross Margin Expanded
+15% percentage points

60%+
Future
Path to long term GM above **60%**

Relatively **flat fixed costs** (people + D&A + facility) while revenue grew +22% CAGR last 3 years

Since FY23 revenue grew **8x** faster than manufacturing headcount, driven by automation

Process re-engineering (e.g. writer cycle time) & automation (e.g. 2x capacity in 20% of the space for Gene Lab 1) drive additional GM expansion

Target all products to have +75% incremental revenue drop to the GM line based on automation and continuous process improvements

* As of financial guidance provided on May 4, 2026.

Infrastructure to Support >\$1B of Annual Revenue Capacity by 2030

Current footprint

Wilsonville

~210,000 sq. feet total space

- Primary capacity for DNA synthesis and protein solutions
- 4 writers today
- Includes 65,000 additional sq. feet available

SSF

~90,000 sq. feet total space

- Primary capacity for NGS applications
- 4 writers today
- 3rd floor expansion in process without incremental cost
- Option to expand to 4th floor

Facility Runway

- Automation efforts to support NPI introductions and protein characterization business
- 8 writers today at ~50% capacity
- 4 writers on order now
- Current footprint supports up to 22 writers across both sites with ability to expand
- Roughly 3X today's writer capacity available within current facilities

CapEx Discipline and Capital Allocation Strategy

Self-funded organic investment

- Self-funded investment to power innovation, NPI machine, automation and commercial execution
- Collaborations with leading customers to establish key positions in emerging markets (e.g., AI Drug Discovery, MRD, AgBio)
- CapEx generally in line with depreciation to support \$1B of revenue capacity by 2030

Opportunistic M&A

- Inorganic focus on 'bolt-on' technology **accretive** to our platform
- Committed to investment agreements that **support our long-term FCF trajectory and margin profile**

Central Criteria:
Bring more volume onto our platform
where we can continue to improve the unit economics

Medium and Long-term Financial Summary

Revenue growth

- FY27-31: More than double revenue from organic growth
- Driven by NPIs, market share expansion, category growth, customer expansion and commercial ramp
- Opportunity for upside from both organic and inorganic investment
- Expect long-term growth to be balanced across DSPS and NGS Applications

Adj. EBITDA & FCF positivity

- On track for Adj. EBITDA breakeven in Q4 FY26
- Adjusted EBITDA positive in FY27 and beyond with significant operating leverage opportunities
- Confidence in path to FCF positive with capital on hand

Gross margin trajectory

- Revenue growth and fixed cost leverage enable long term GM >60%
- Automation and continuous process improvements enable capacity expansion within existing facilities
- Continue to expect all products to have +75% incremental revenue drop to the GM line based on automation and continuous process improvements

Capital allocation & CapEx

- Self-funded investment to power NPI machine, automation and commercial execution
- \$1B annual revenue capacity in existing locations with continued CapEx investment in line with depreciation
- Bolt-on M&A strategy in emerging areas can accelerate growth

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- **Culture**
- Q&A

Paula Green

SVP, HR and Facilities

The Culture Advantage





**We make synthetic
DNA to improve health
and sustainability**

Mission

We work in service of customers who are changing the world for the better. In fields such as medicine, agriculture, and industrial chemicals by using our synthetic DNA tools, our customers are developing ways to better lives and improve the sustainability of the planet

Our History: Writing DNA from Concept to Creation

How it started



How it's going



Who We Are: Driven to Win



We operate like a sports team, not a family

- Best player for each position
- Expect team play
- Competition is outside the company
- Employ commercial execution, with kindness
- Demand performance

Who We Are: We Work by Our Four Guiding Principles

Grit



Passionate drive, fierce determination

- Always strive for excellence and persevere
- Adapt resiliently and learn from each attempt
- Drive strategic and sustainable outcomes
- Take ego-less ownership and focus on resolution

Impact



Bold ideas, daily incremental contributions

- Skillfully deliver on ambitious goals and stay humble
- Collaborate and share knowledge to create value
- Diligently improve quality, velocity and cost
- Voice your ideas, commit the time, find new ways

Service



Always ask, what can I do for you?

- Listen, hear and dialogue empathetically
- Relentlessly focus on internal and external customer needs
- Communicate to deliver outstanding service
- Build mutually beneficial, long-lasting relationships

Trust



Vigilant stewardship, transparent interactions

- Provide products designed and intended for public benefit
- Protect the well-being of people and our planet
- Demonstrate integrity and ethical behavior
- Interact in an accountable, respectful and transparent manner



Who We Are:

Culture as a Competitive Advantage

Culture Drives Outsized Success

Experts across multiple disciplines:

- Relentless innovation
- Operational excellence paired with startup velocity
- Customer obsession and scientific partnership
- Precision, quality, reliability as expectation
- Automation and scalability mindset
- Boldness and willingness to disrupt legacy approaches
- Cross functional integration and adaptability
- Motivated to change the world and make money

One Twist Team

Who We Are: People Philosophy

Goal: Twist is the best place our employees have ever worked

Our people are what make Twist great:

- People-first, servant leadership
- People-first compensation, benefits and policies
- Recruit and retain A players
- Everything is done the Twist way



How we compete

Commercial execution

with Kindness

We pursue every win with relentless intensity and total respect. Commercial execution is not about ego. It's about protecting our customers and creating lasting advantage.

Partner

Listen to customer needs, bring those back to the organization.

Enable

From deep science to implementation, go above and beyond to support customers.

One Twist team

Win gracefully. Compete with conviction. Competition is on the outside.



How we operate

Customer-Centricity



How we operate

Enterprise Discipline

Enterprise discipline

Commitment culture

We say what we are going to do and we do what we say
Accountability and alignment are at the heart of our operations

Quality is non-negotiable

Every unit shipped reflects the Twist standard. No exceptions at any scale

Automation and software to scale

New products reuse existing infrastructure. Automate the automation to improve efficiency

As product scales, take costs out

OpEx reduction is a growth lever implemented once product begins commercial ramp

Startup velocity

Launch with alpha customers

Good and launched beats perfect and delayed. Customers tell us what they really need when the products are in their hands

Decisions at the edge

Bold decisions made by leadership drive new opportunities

Fail fast, fix fast

A failed experiment is data. An ignored experiment is waste. We learn and move

Remain nimble to embrace emerging opportunities

A product today may not have been imagined 2 years ago. We remain flexible to embrace new opportunities quickly

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-

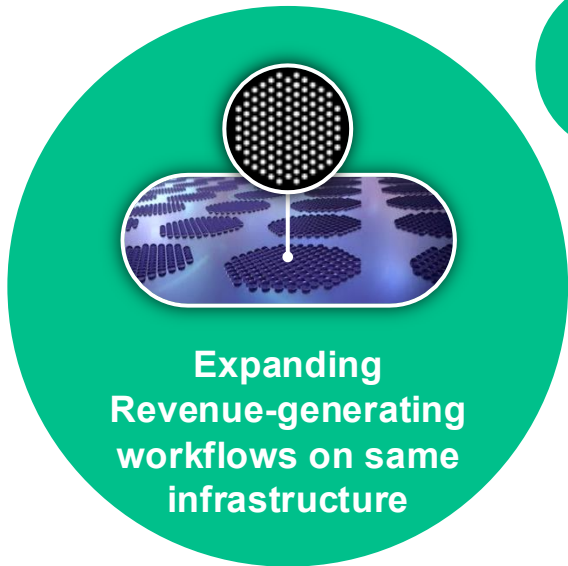
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- **Q&A**

Q&A

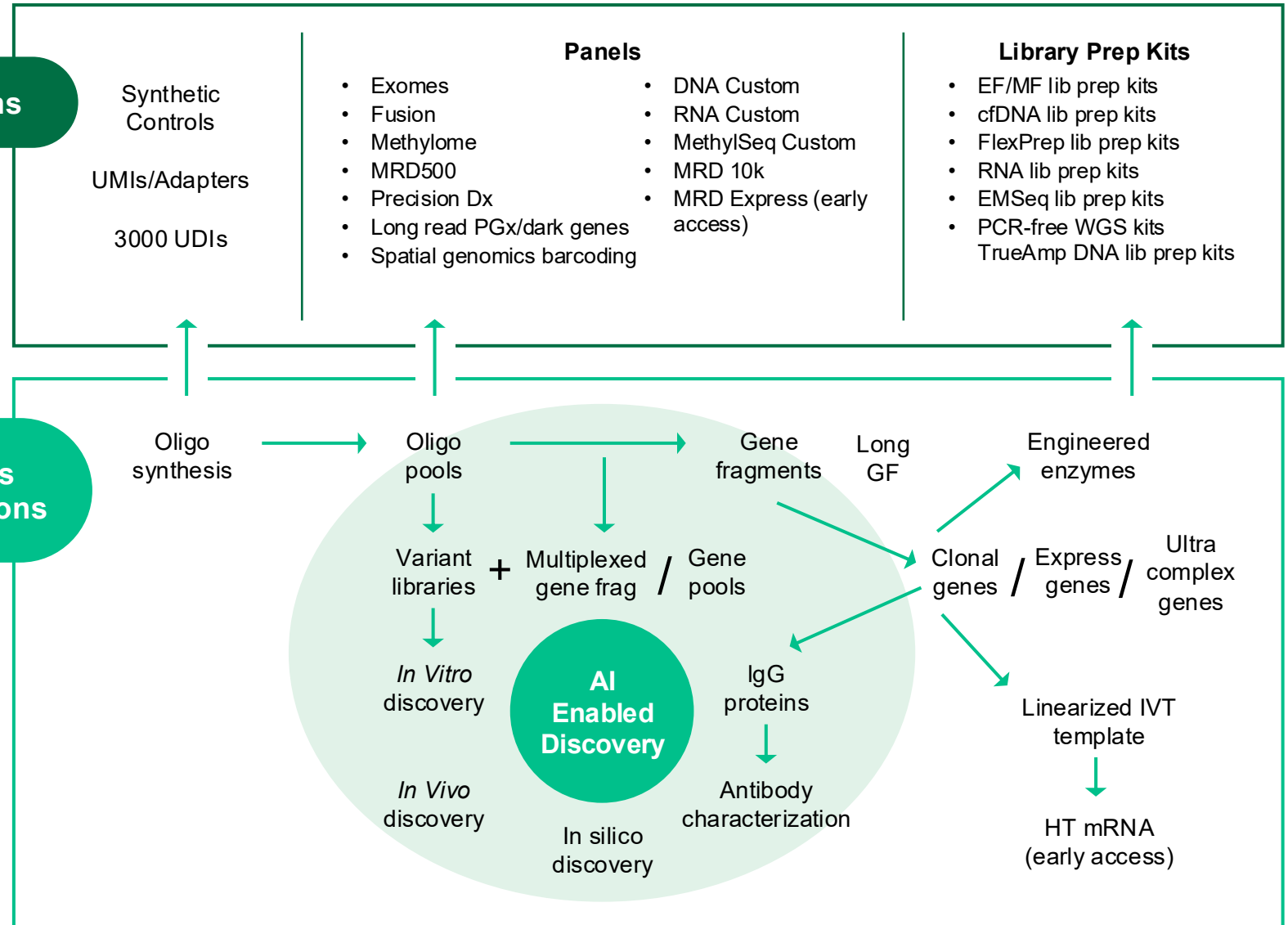
Synergistic Solutions that Work Together

2021
& prior



NGS applications

DNA synthesis & protein solutions



Synergistic Solutions that Work Together

2026

NGS applications

Synthetic Controls
UMIs/Adapters
3000 UDIs

- Panels**
- Exomes
 - Fusion
 - Methylome
 - MRD500
 - Precision Dx
 - Long read PGx/dark genes
 - Spatial genomics barcoding

- DNA Custom
- RNA Custom
- MethylSeq Custom
- MRD 10k
- MRD Express (early access)

- Library Prep Kits**
- EF/MF lib prep kits
 - cfDNA lib prep kits
 - FlexPrep lib prep kits
 - RNA lib prep kits
 - EMSeq lib prep kits
 - PCR-free WGS kits
 - TrueAmp DNA lib prep kits



DNA synthesis & protein solutions

Oligo synthesis
Siyuan

Oligo pools

Variant libraries
In Vitro discovery

In Vivo discovery

Multiplexed gene frag

AI Enabled Discovery

In silico discovery

Gene fragments

Gene pools

IgG proteins

Antibody characterization

Long GF

Clonal genes

Express genes

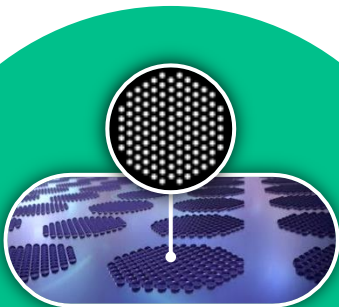
Ultra complex genes

Linearized IVT template

HT mRNA (early access)

Engineered enzymes

Siyuan



More
on the same chip

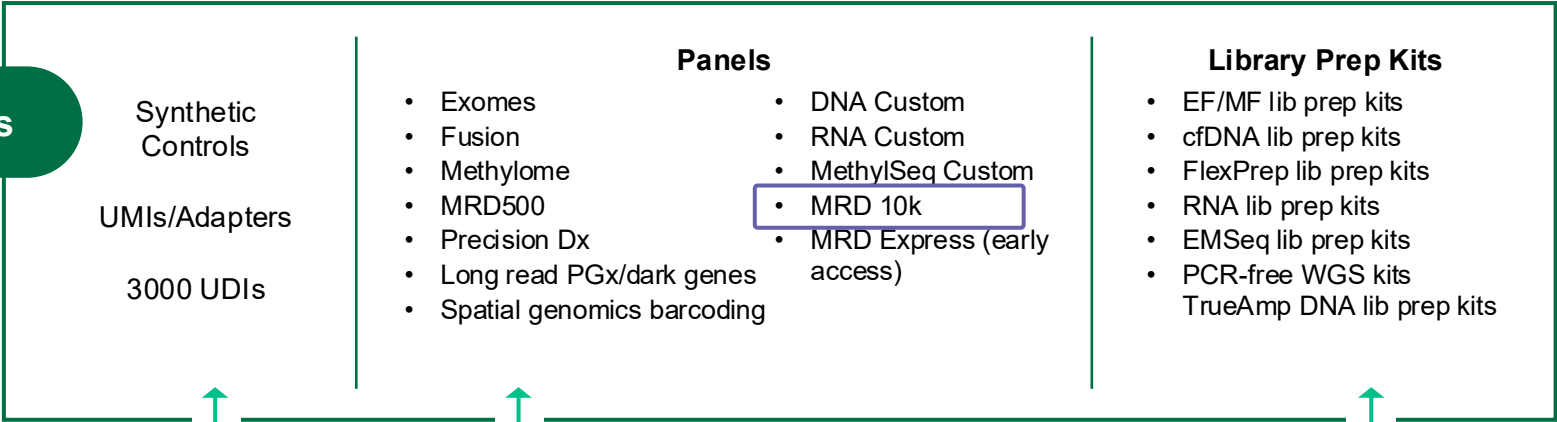


*Introduced in 2025

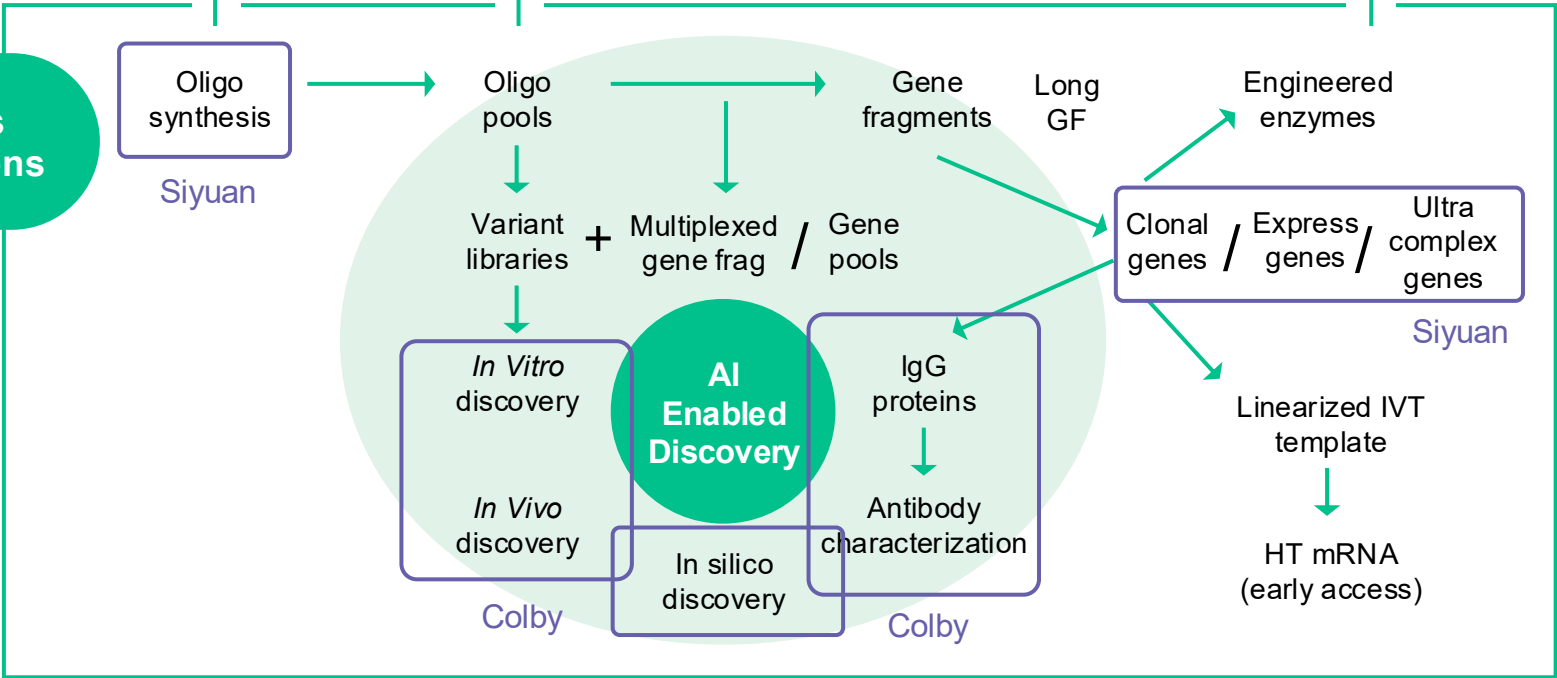
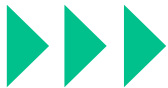
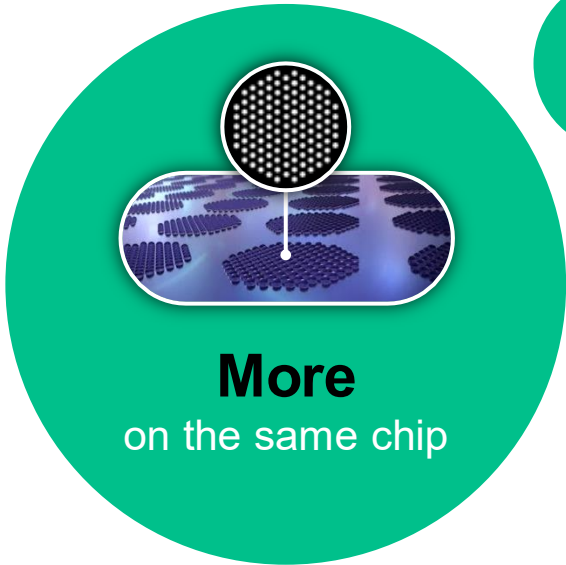
Synergistic Solutions that Work Together

2026

NGS applications



DNA synthesis & protein solutions



*Introduced in 2025

Synergistic Solutions that Work Together

2026

NGS applications

Synthetic Controls
UMIs/Adapters
3000 UDIs

- Panels**
- Exomes
 - Fusion
 - Methylome
 - MRD500
 - Precision Dx
 - Long read PGx/dark genes
 - Spatial genomics barcoding

- DNA Custom
- RNA Custom
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- EF/MF lib prep kits
 - cfDNA lib prep kits
 - FlexPrep lib prep kits
 - RNA lib prep kits
 - EMSeq lib prep kits
 - PCR-free WGS kits
 - TrueAmp DNA lib prep kits

DNA synthesis & protein solutions

Oligo synthesis
Siyuan

Oligo pools
Customer

Gene fragments

Long GF

Engineered enzymes

Variant libraries

+ Multiplexed gene frag

Gene pools

Clonal genes

Express genes

Ultra complex genes
Siyuan

In Vitro discovery

In Vivo discovery

AI Enabled Discovery

In silico discovery

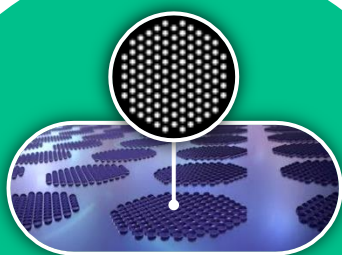
IgG proteins

Antibody characterization
Colby

Linearized IVT template

HT mRNA (early access)

TWIST
BIOSCIENCE



More
on the same chip

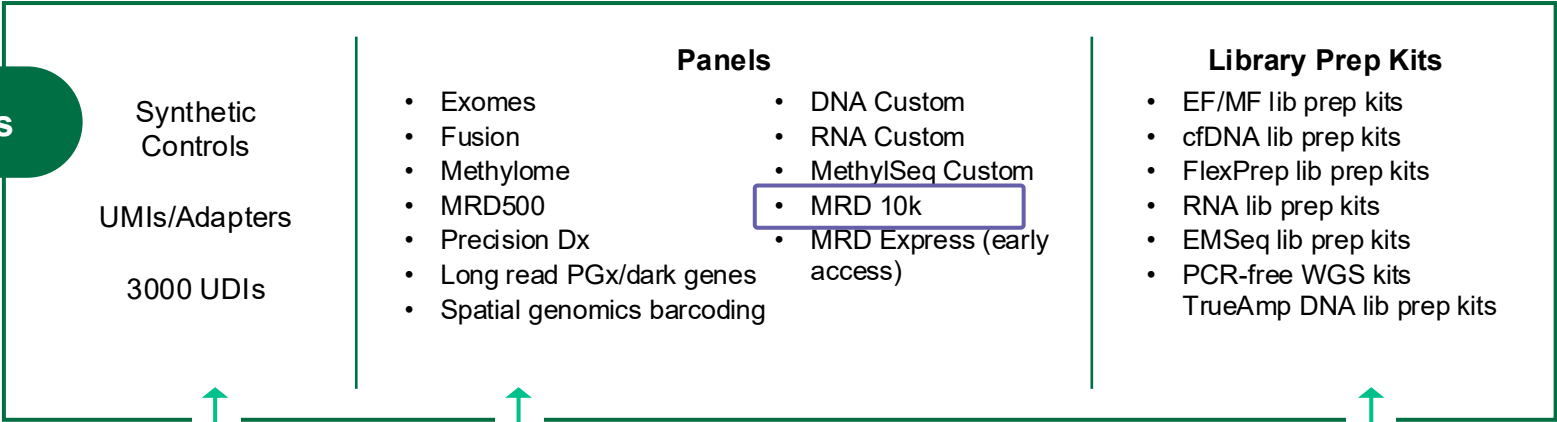


*Introduced in 2025

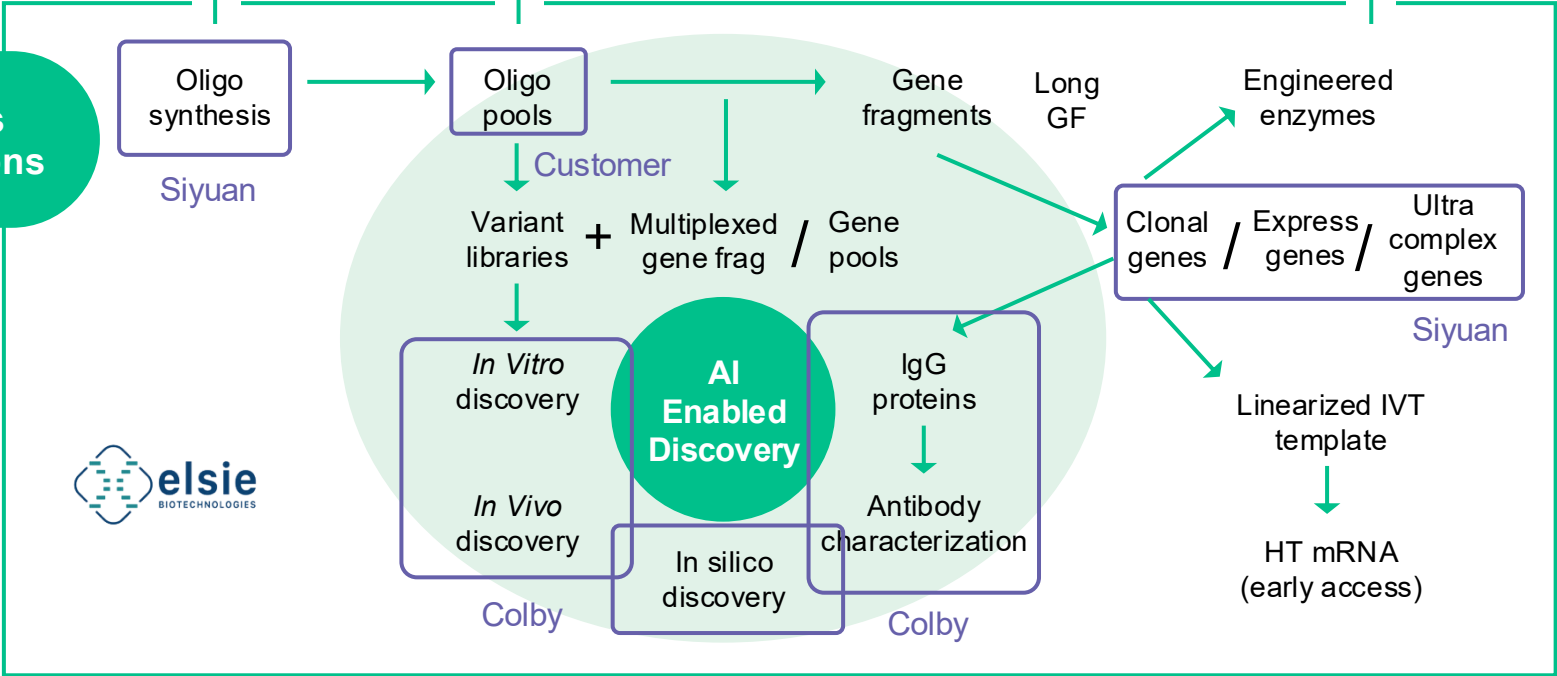
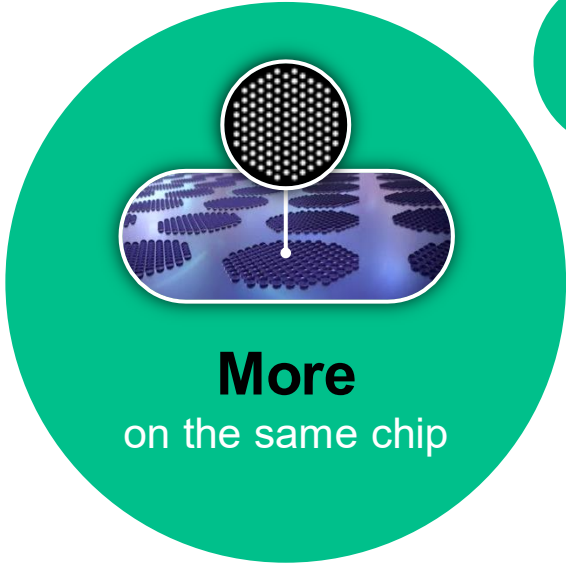
Synergistic Solutions that Work Together

2026

NGS applications



DNA synthesis & protein solutions

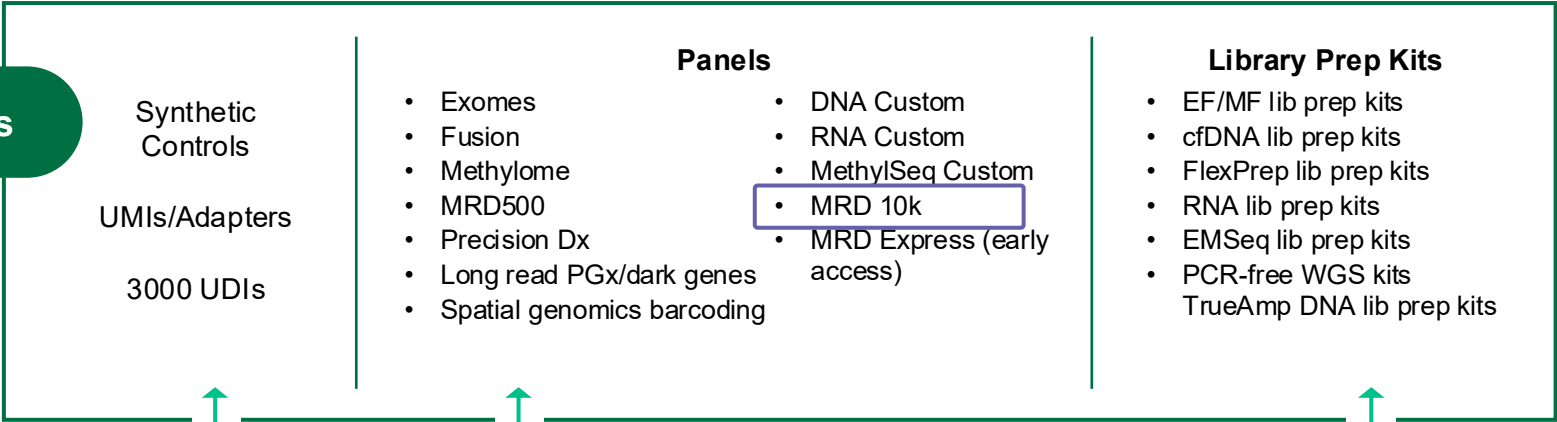


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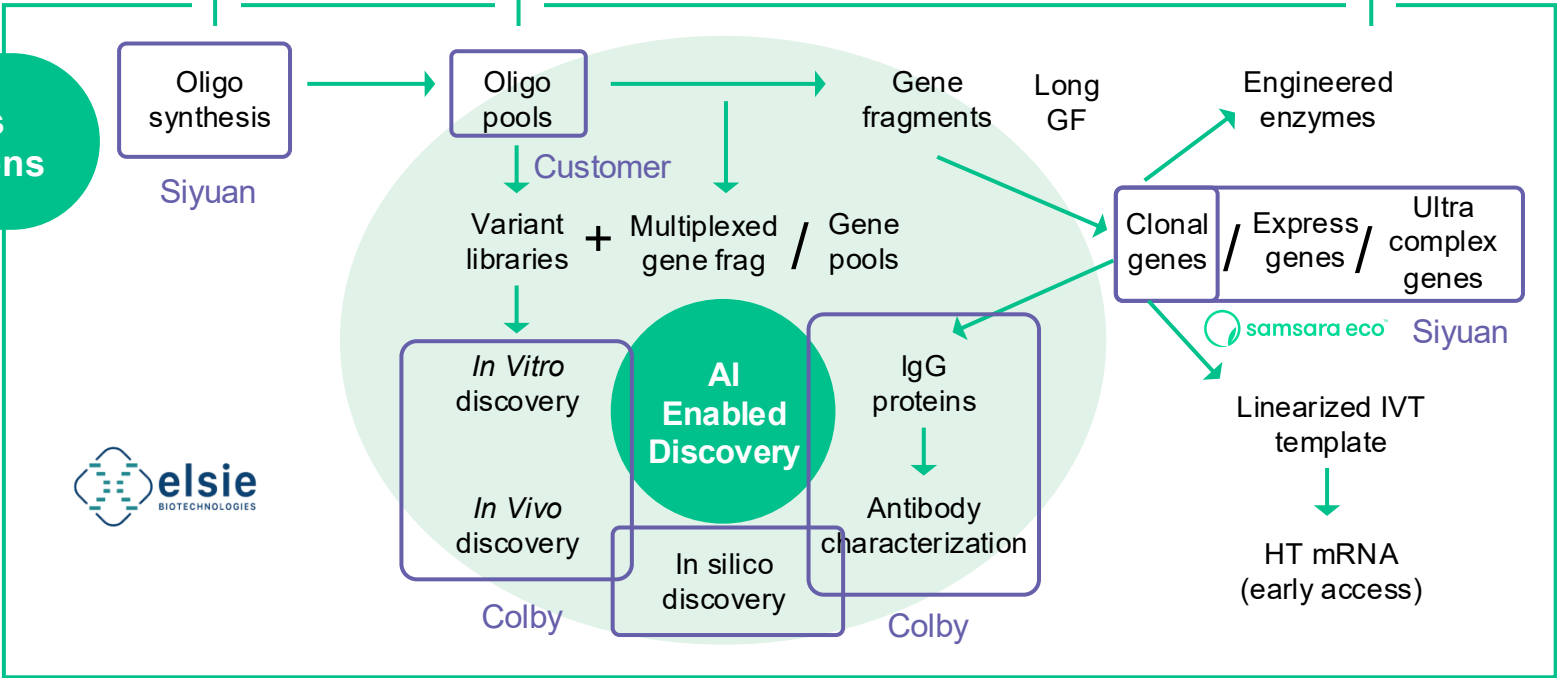
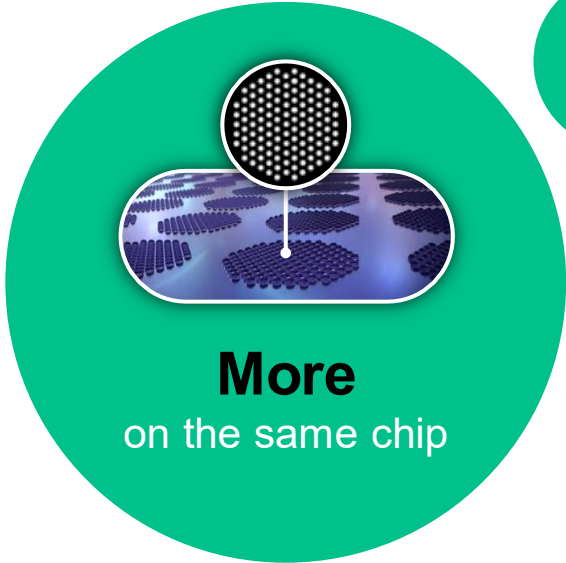
Synergistic Solutions that Work Together

2026

NGS applications



DNA synthesis & protein solutions

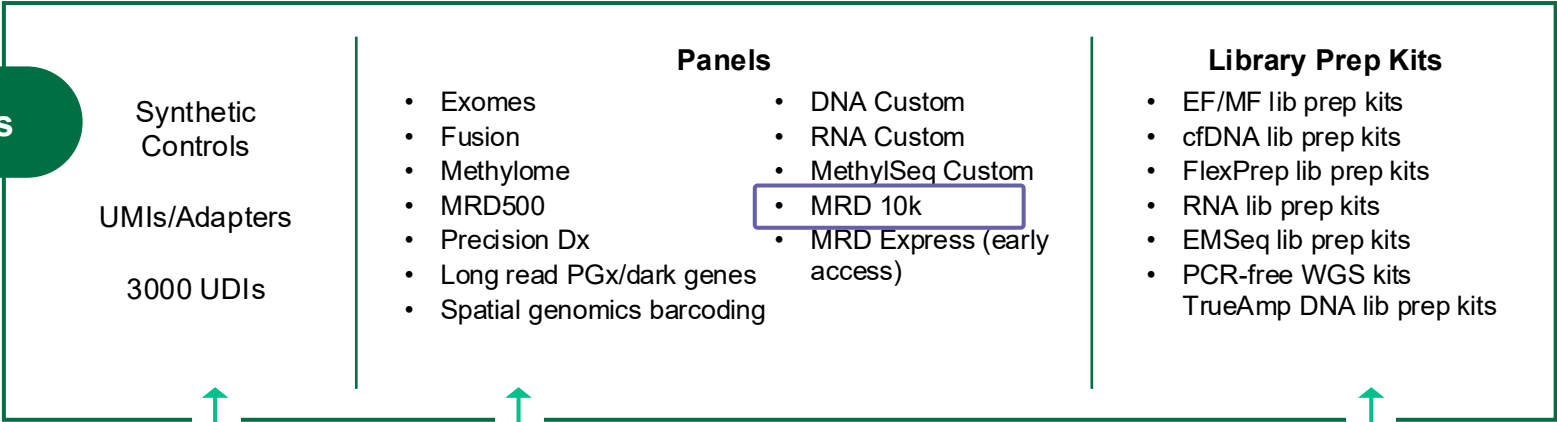


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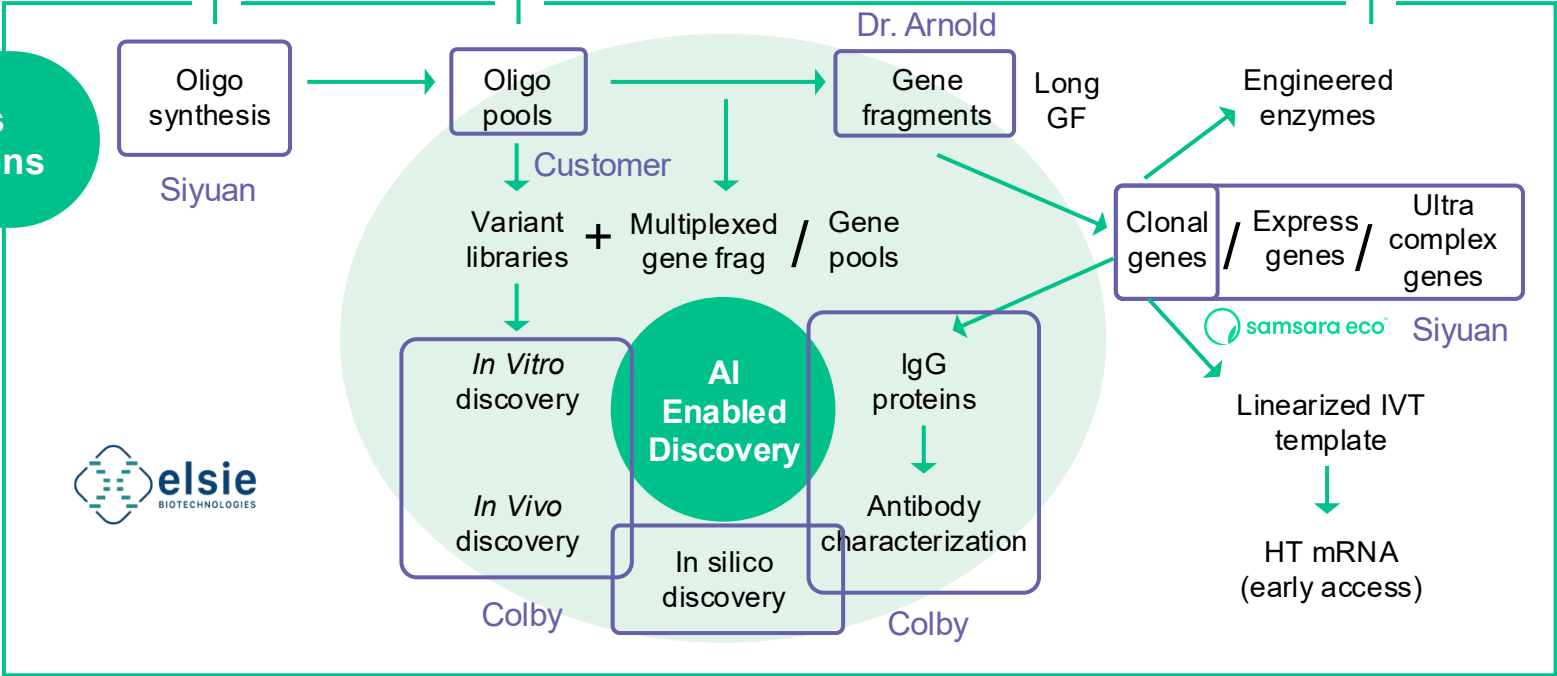
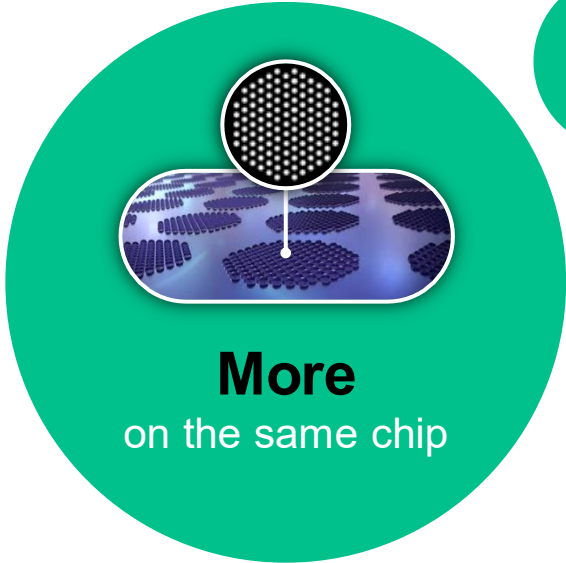
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2026

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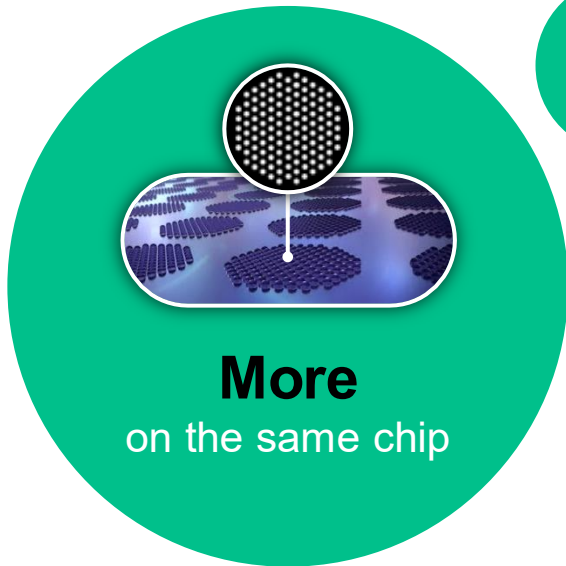
DNA synthesis & protein solutions



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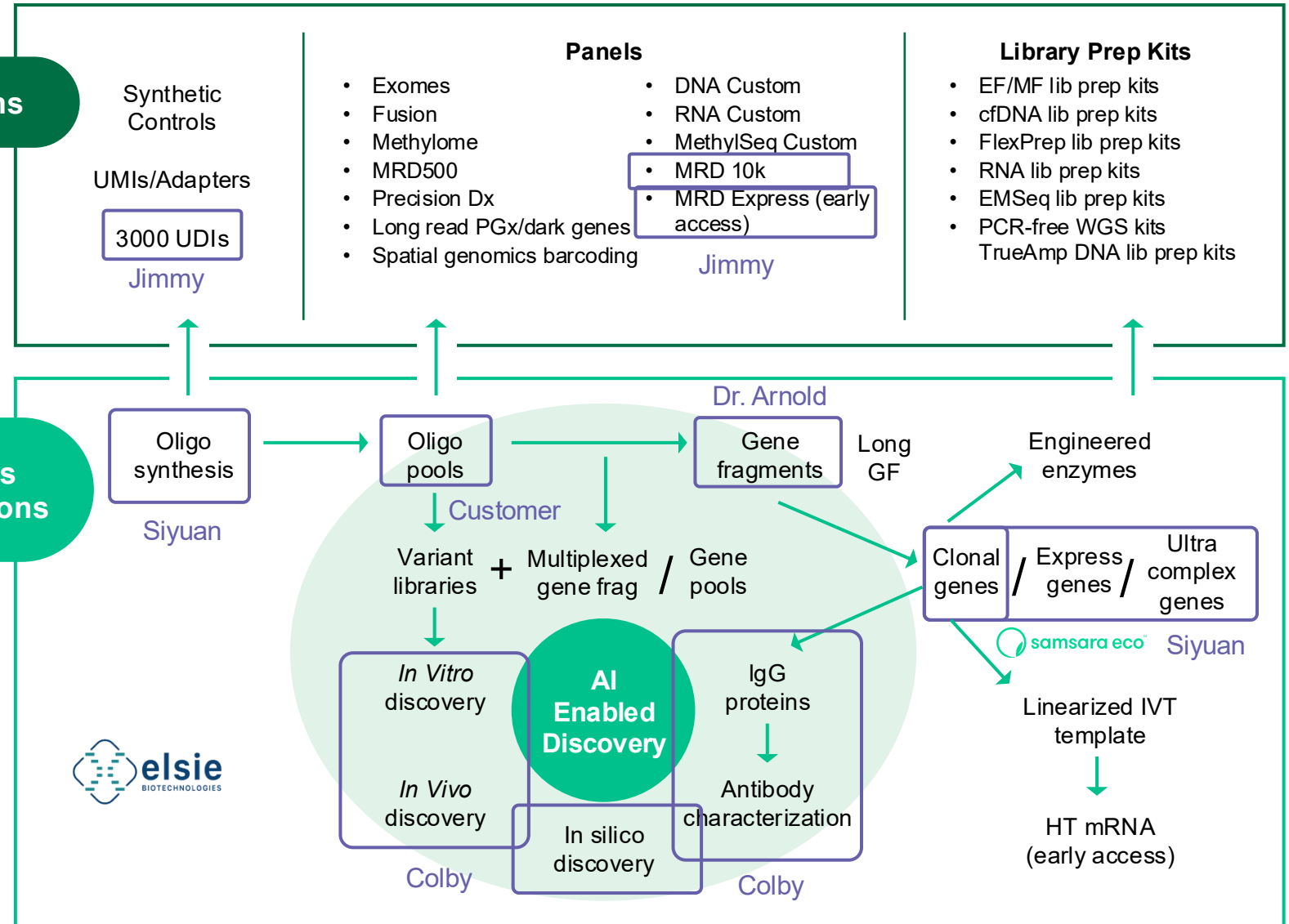
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2026



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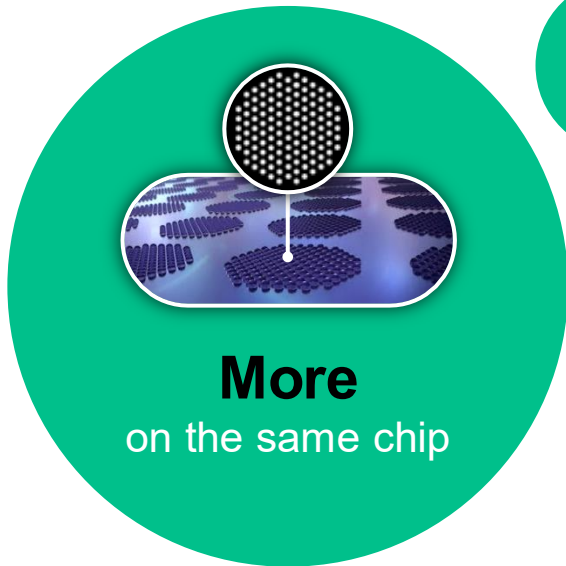
DNA synthesis & protein solutions



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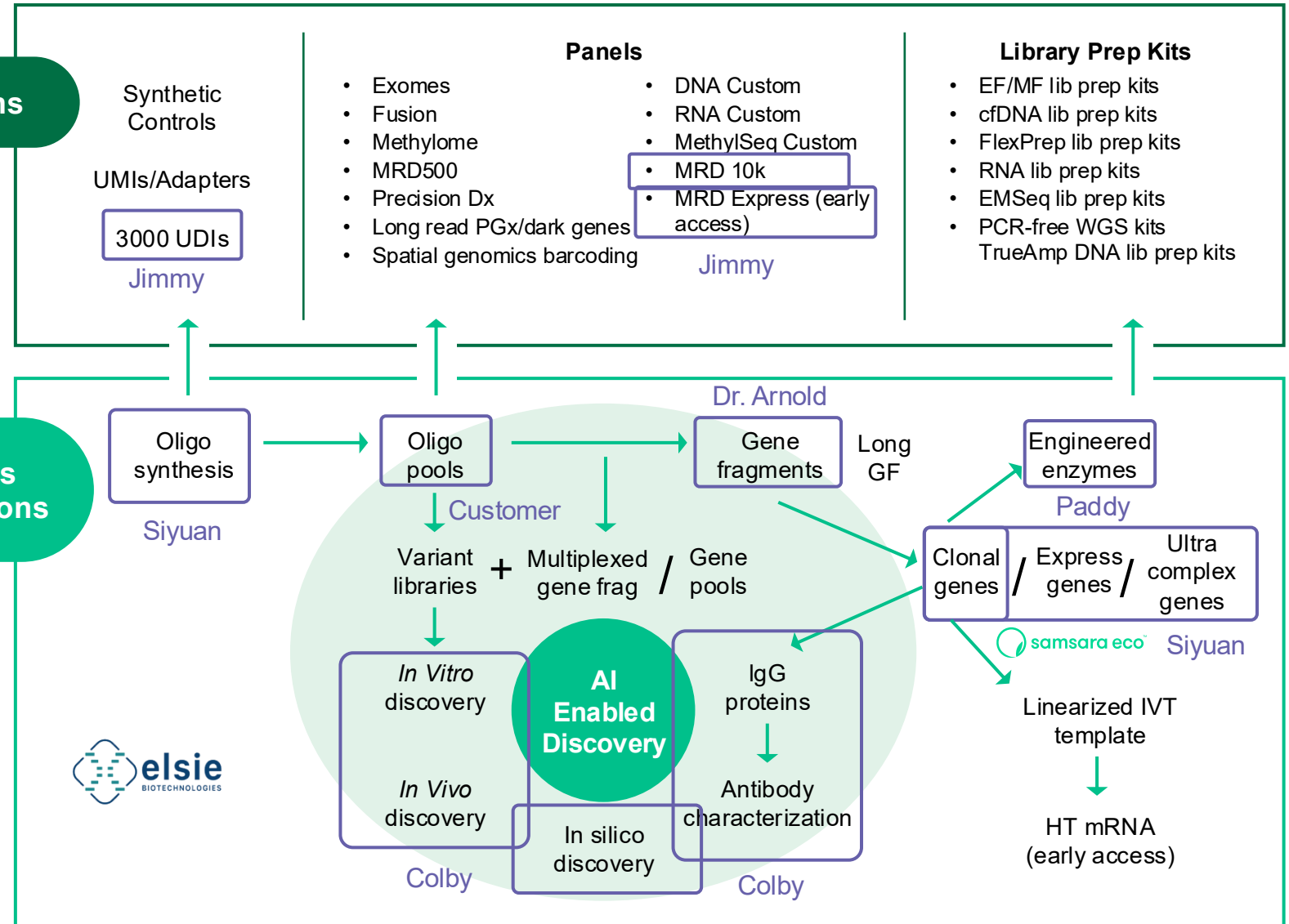
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2026



NGS applications

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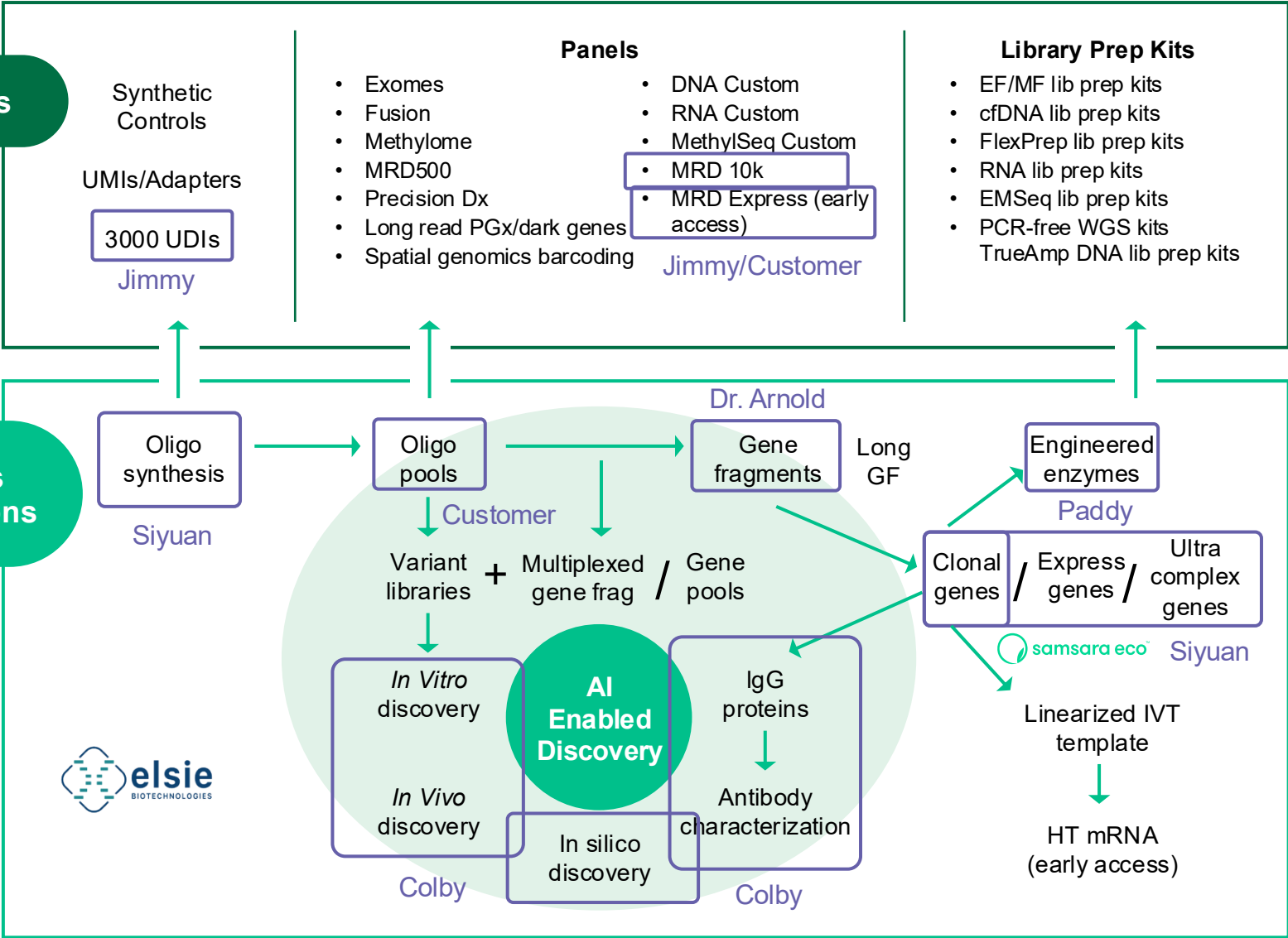
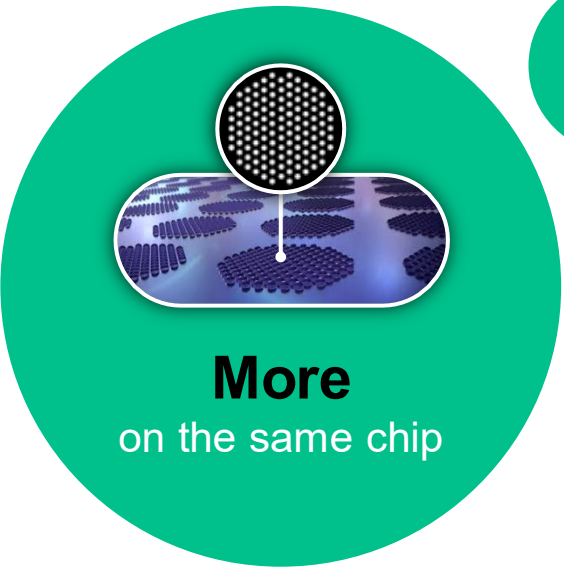
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2026

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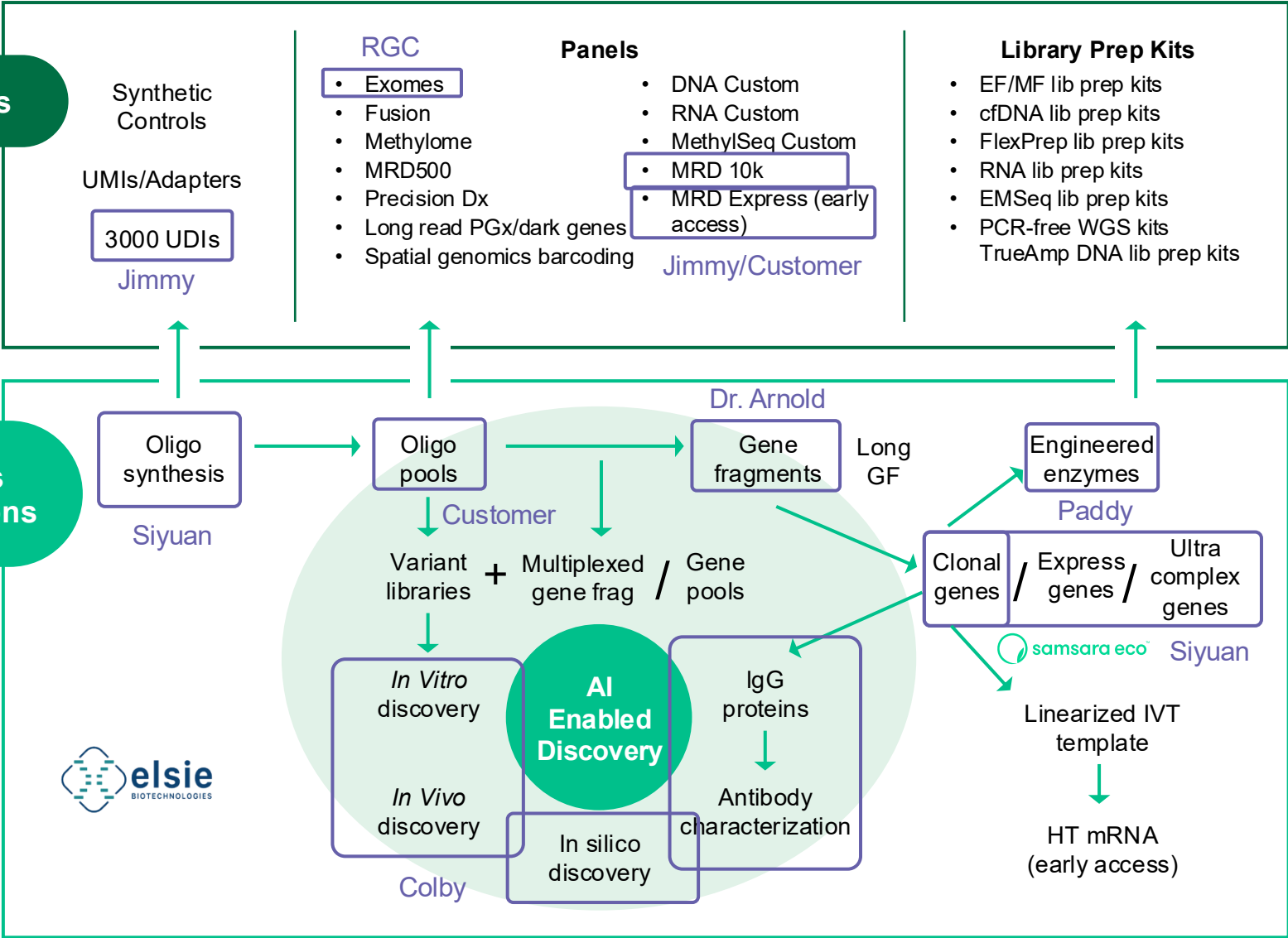
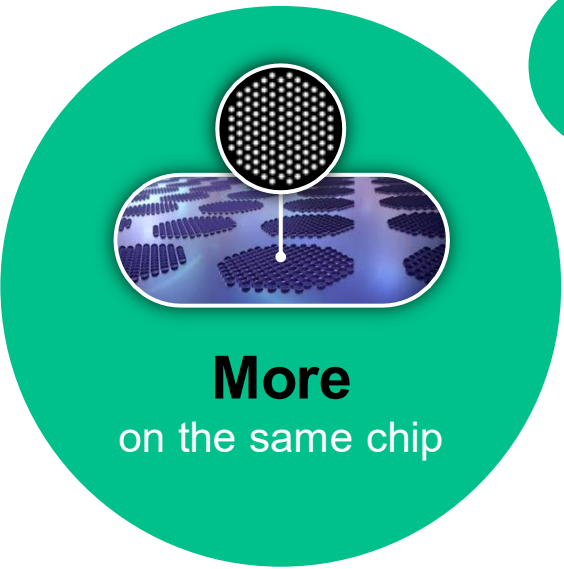
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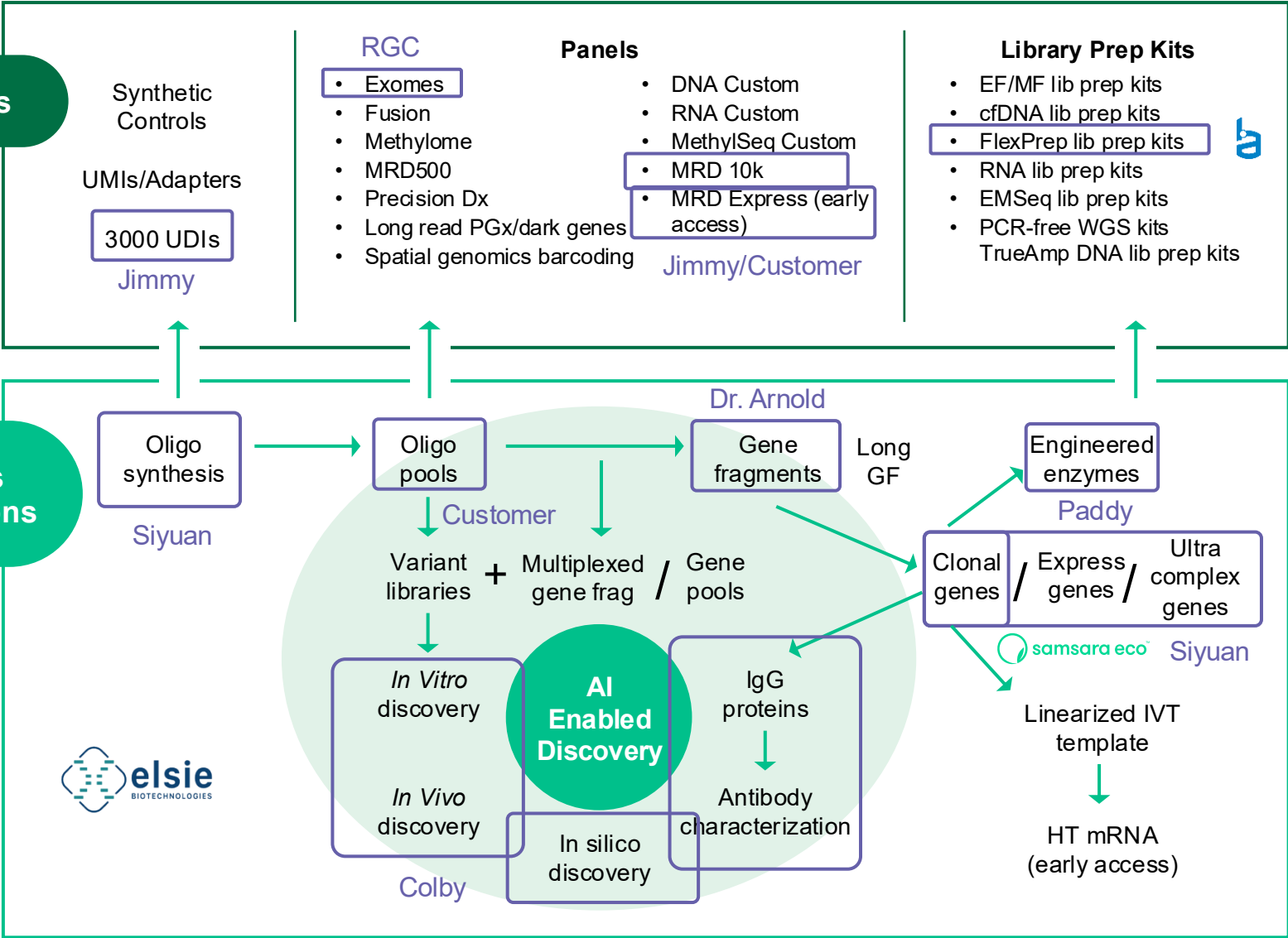
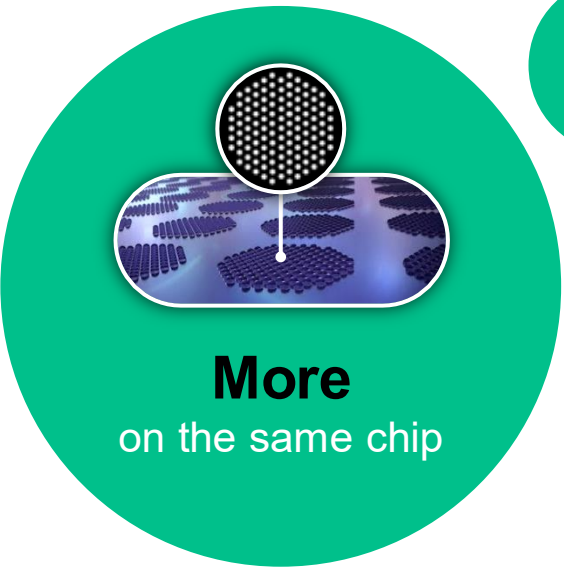
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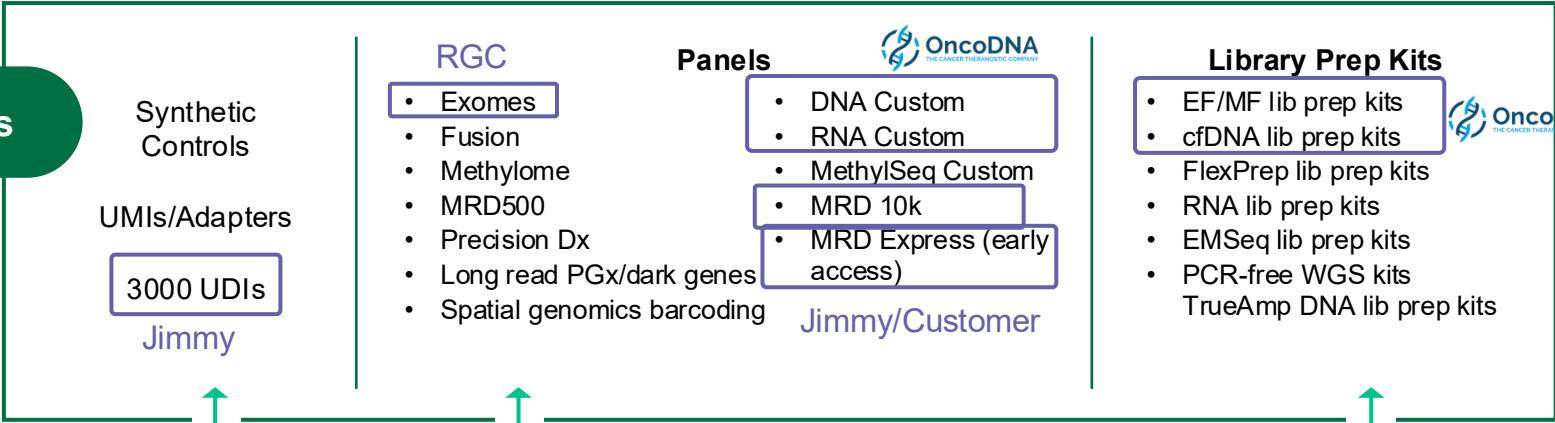


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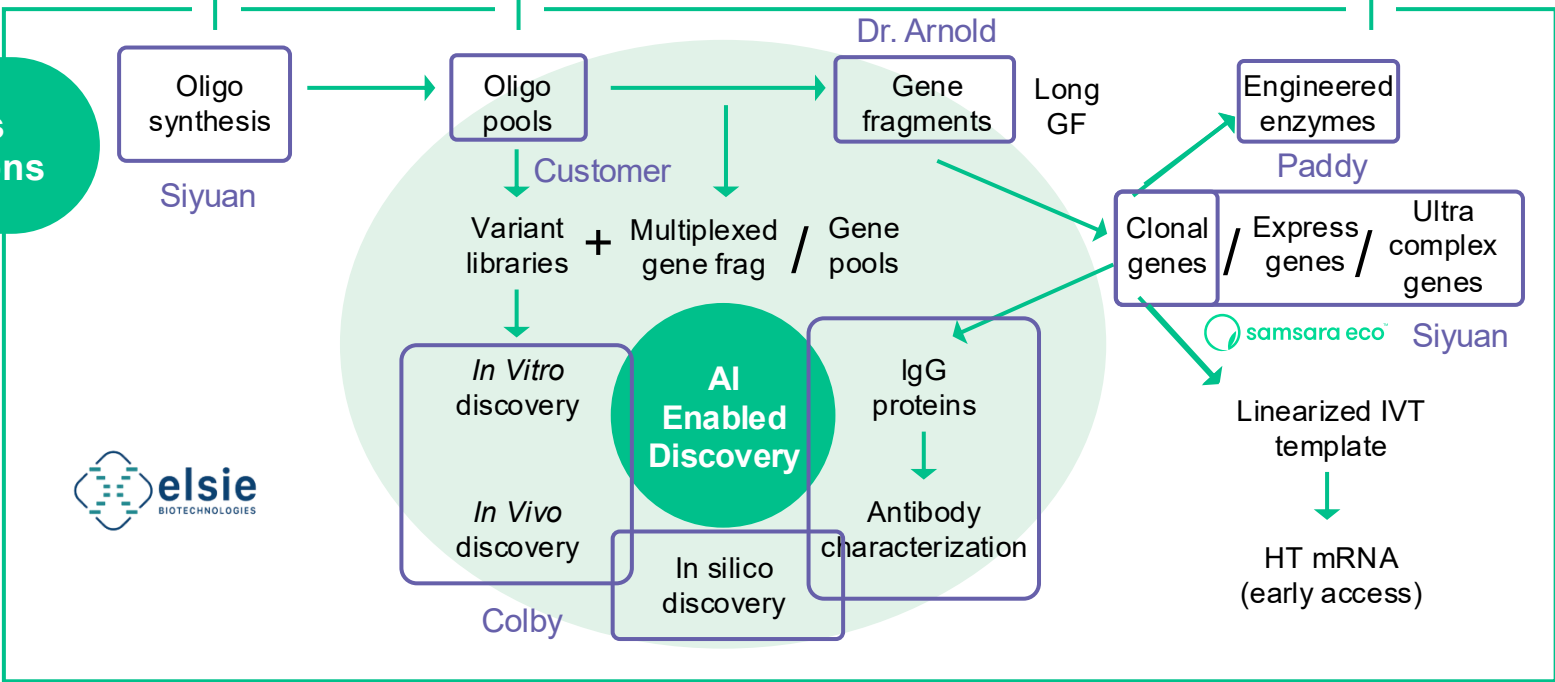
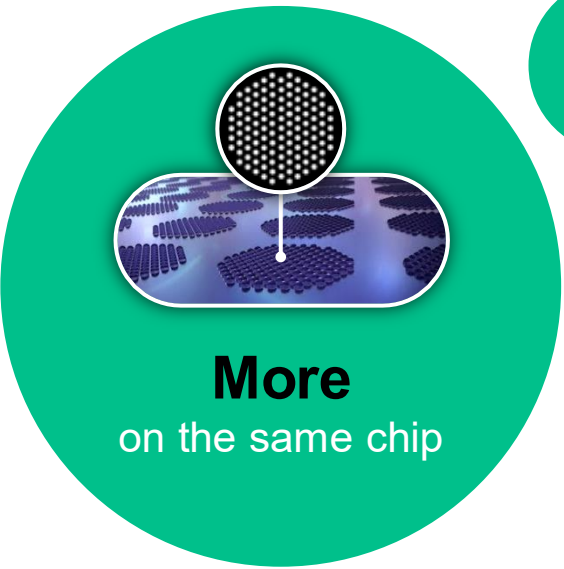
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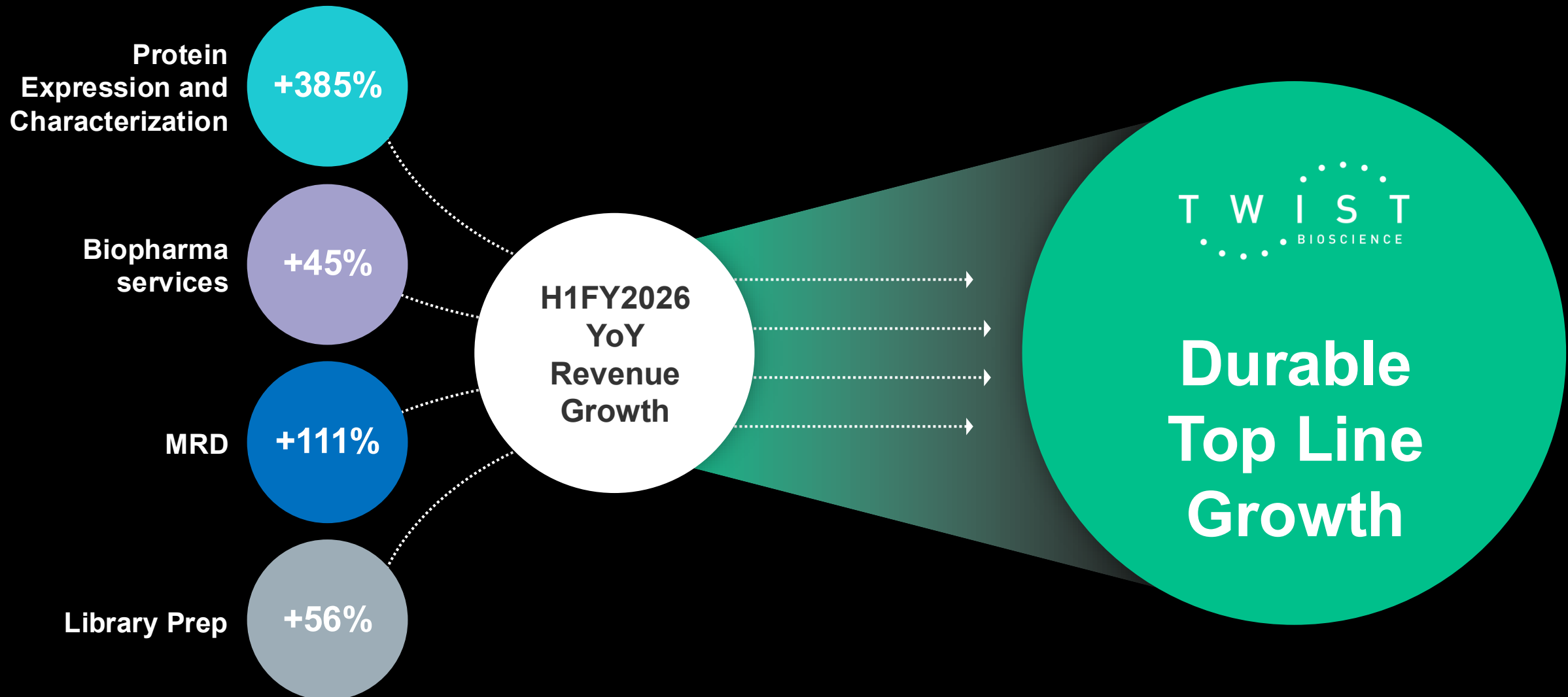


DNA synthesis & protein solutions



*Introduced in 2025

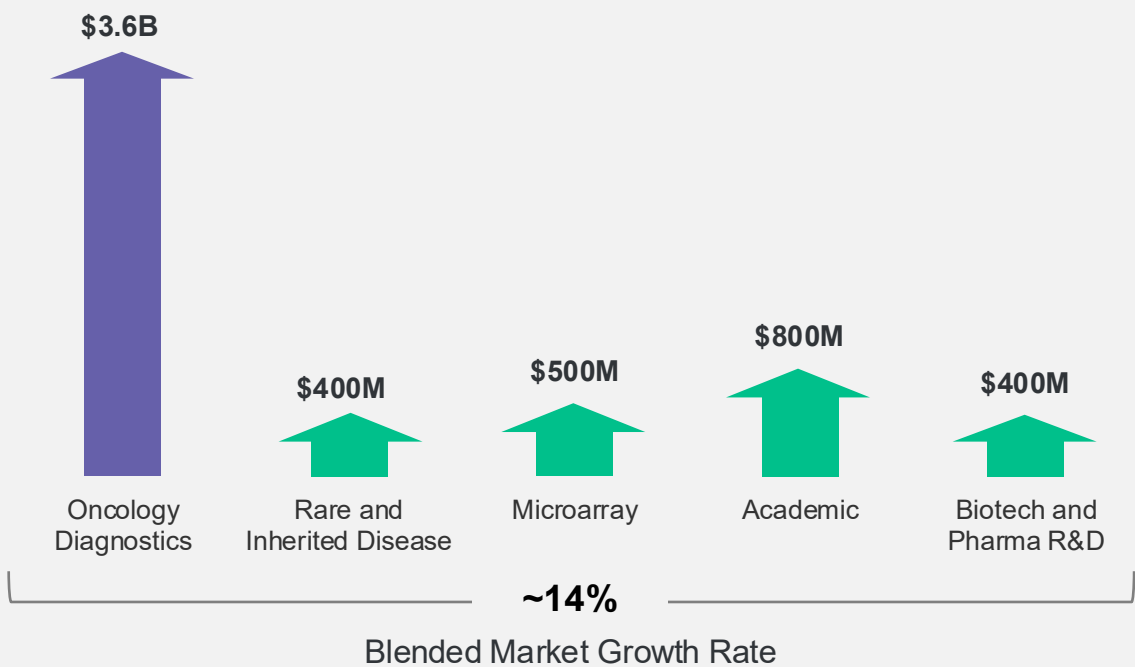
Multiple Growth Levers – H1FY2026 to H1FY2025



2030: Continuing to Expand SAMs Driven by NPIs

\$6B SAM* and >\$90B TAM

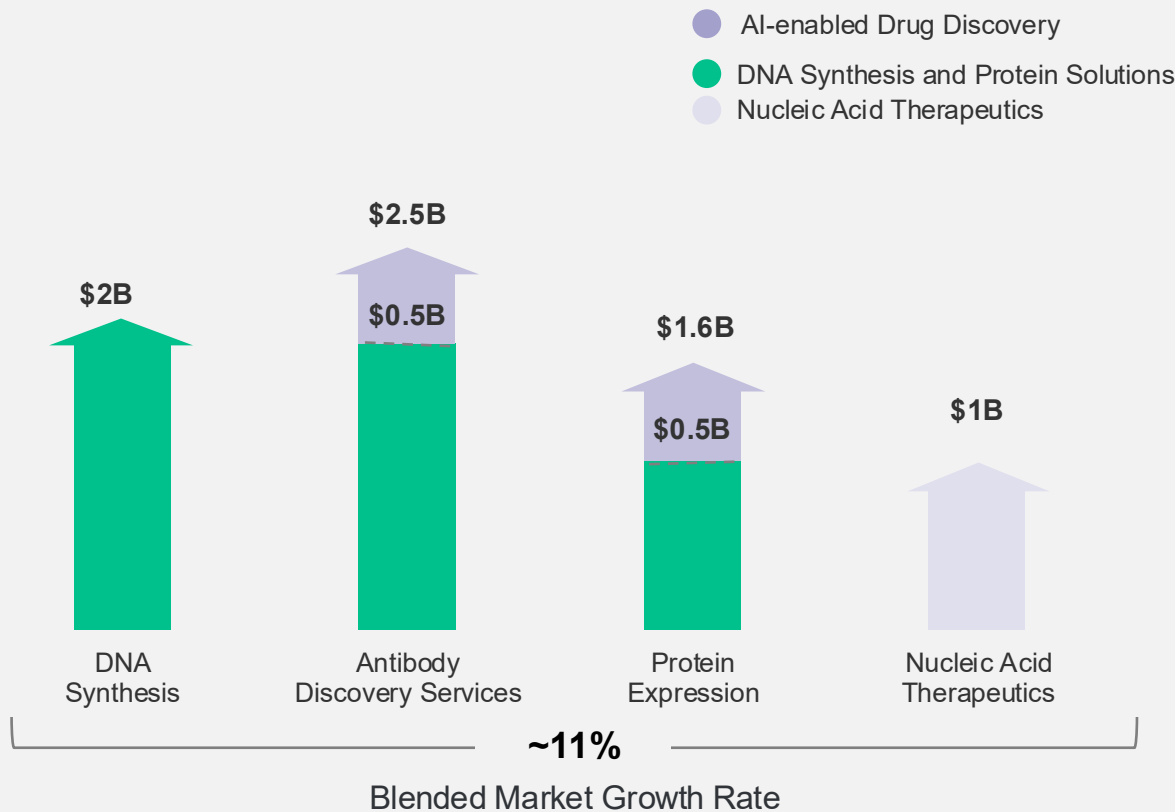
NGS Applications



*Liquid biopsy (therapy selection, multicancer screening, minimal residual disease), comprehensive genomic profiling tissue
**BCC reports, DeciBio, Twist internal estimates

\$7B+ SAM* and \$180B TAM

DNA Synthesis and Protein Solutions



*BCC reports, DeciBio, Grand View, Antibodies – recombinant protein market stat; Twist internal estimates

Scaled Infrastructure with Expanding Operating Leverage

Industrialized

DNA and protein
synthesis platform

Manufacturing

prowess paired with
automation excellence

Automation & Software

support scalable
customization

Monetization

many layers
through portfolio
expansion

Diversified

customer base within
multiple markets

Profitable Growth

inflection point FY27-
FY31

Durable

growth ahead

Performance

culture



Thank you

Adjusted EBITDA Reconciliation

(In Thousands)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY2025
GAAP Net Income (Loss)	(\$ 139,931)	(\$152,098)	(\$217,863)	(\$204,619)	\$(208,726)	\$(77,670)
Add (Deduct) Adjustments:						
Interest income	(1,499)	(435)	(3,062)	(14,365)	(15,344)	(11,364)
Interest expense	787	367	80	—	—	—
Income tax expense (benefit)	382	(1,930)	(10,411)	1,153	560	719
Depreciation and amortization	6,677	9,750	16,514	29,310	31,432	24,853
EBITDA	(\$ 133,584)	(\$144,346)	(\$217,742)	(\$188,521)	\$(192,079)	\$(63,462)
Add (Deduct) Adjustments:						
Other income/expense, net	182	1,370	1,087	672	2,679	903
Stock-based compensation expense	17,096	36,998	79,664	30,278	50,925	64,459
Gain on sale of business	—	—	—	—	—	(48,847)
Gain on deconsolidation of business	—	—	(4,607)	—	—	—
Litigation settlement	22,500	—	—	—	—	—
Change in fair value of contingent considerations and holdbacks	—	(534)	(14,245)	(5,912)	—	—
Restructuring costs	—	—	—	9,384	—	—
Impairment of long-lived assets	—	—	—	6,785	44,930	—
Adjusted EBITDA	(\$ 93,806)	(\$106,512)	(\$152,843)	(\$147,314)	\$(93,545)	221

Adjusted R&D and SG&A Expenses Reconciliation

(In Millions)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
R&D Expenses — GAAP	\$43.0	\$69.1	\$120.3	\$106.9	\$90.9	\$80.3
Adjusted to exclude:						
Depreciation and Amortization	3.0	3.2	3.5	4.0	3.0	1.3
Stock-based Compensation Expense	3.3	10.2	19.5	13.9	11.2	9.0
Adjusted R&D Expenses	\$36.7	\$55.7	\$97.3	\$88.9	\$76.6	\$70.0
SG&A Expenses — GAAP	\$103.3	\$135.9	\$212.9	\$189.7	\$218.4	\$247.0
Adjusted to exclude:						
Depreciation and Amortization	1.8	3.6	6.5	6.9	6.8	6.5
Stock-based Compensation Expense	12.5	24.2	55.5	11.8	35.7	48.5
Adjusted SG&A Expenses	\$89.0	\$108.2	150.9	\$171.1	\$175.9	\$192.0
Adjusted R&D + SG&A Expenses	\$125.7	\$163.9	248.2	\$260.0	\$252.5	\$262.0