



Writing the Future

EMILY LEPROUST, PH.D., CEO and CO-FOUNDER



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This presentation contains forward-looking statements. In particular, statements regarding Twist Bioscience Corporation's ("Twist," "we" or "our") expectations regarding its future financial performance, the impact of the COVID-19 pandemic on Twist's future financial performance, Twist's ability to address the challenges posed by the business and economic impacts of COVID-19 pandemic, diversification and revenue growth across all product categories, introduction of new products, the use of our products by the healthcare sectors for the potential detection and treatment of diseases, expectations regarding partnerships, the impact of Twist's "Factory of the Future" and expectations and objectives of management constitute forward-looking statements. Forward-looking statements can be identified by the fact that they do not relate strictly to historical facts and generally contain words such as "believes," "expects," "may," "will," "should," "seeks," "approximately," "intends," "plans," "estimates," "anticipates," and other expressions that are predictions of or indicate future events and trends and that do not relate to historical matters. Although the forward-looking statements contained in this presentation are based upon information available at the time the statements are made and reflect management's good faith beliefs, forward-looking statements inherently involve known and unknown risks, uncertainties and other factors, which may cause the actual results, performance or achievements to differ materially from anticipated future results. Important factors that could cause actual results to differ materially from expectations include, among others: the risks and uncertainties of the duration, extent and impact of the COVID-19 pandemic, including any reductions in demand for Twist's products (or deferred or canceled orders) globally or in certain regions; the ability to attract new customers and retain and grow sales from existing customers; risks and uncertainties of rapidly changing technologies and extensive competition in synthetic biology could make the products Twist is developing obsolete or non-competitive; uncertainties of the retention of a significant customer; supply chain and other disruptions caused by the COVID-19 pandemic or otherwise; risks of third party claims alleging infringement of patents and proprietary rights or seeking to invalidate Twist's patents or proprietary rights; and the risk that Twist's proprietary rights may be insufficient to protect its technologies. You should not place undue reliance on these forward-looking statements, which speak only as of the date hereof. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. Factors that may cause actual results to differ materially from any future results expressed or implied by any forward-looking statements include the risks described in the "Risk Factors" section of our Quarterly Report on Form 10-Q for the quarter ended December 31, 2020, as well as those set forth from time to time in our other Securities and Exchange Commission ("SEC") filings, available at <http://www.sec.gov>. We do not undertake to update or revise any forward-looking statements after they are made, whether as a result of new information, future events, or otherwise, except as required by applicable law.

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

DNA is Changing the World



Synthetic DNA Is the Future of Everything



Chemicals
Sustainability



Food
Food Security



Therapeutics
Health



Diagnostic
Precision Medicine



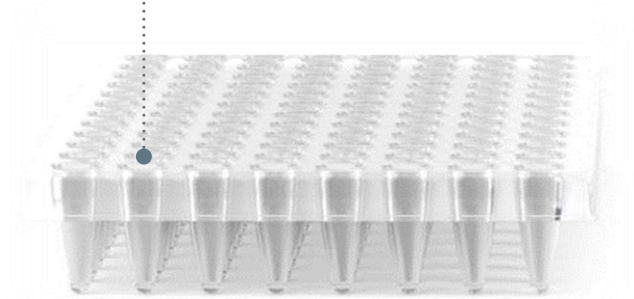
Data Storage
Preserving Heritage



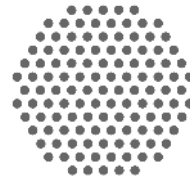
Twist DNA Writing on Silicon Platform

Everyone Else

1 Oligo per well



96 Well Plate
makes 1 gene



1M Oligos per chip



**State of the
art commercial
infrastructure**

Proprietary software

Robotics

Integrated
ecommerce platform

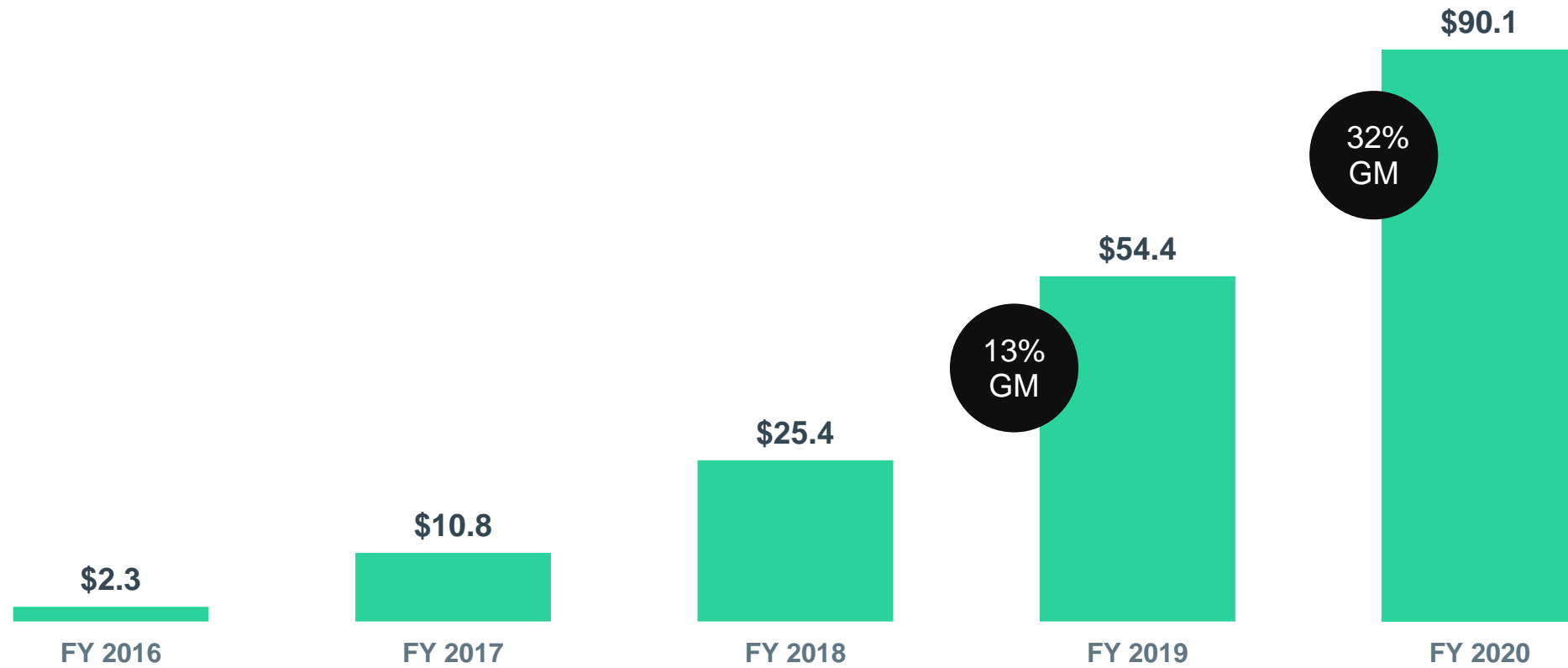
Manufacturing
execution system

Up to
10,000x
more scale &
throughput

Twist Silicon Platform
can make 9,600 genes



Strong Revenue Growth and Increasing Gross Margin





We are Building a Diverse Portfolio of Businesses



Drug
Discovery

Data
Storage

**High-value
solutions**
Future upside

Tools
High-growth
revenue today

Synthetic
Biology

Next-Gen
Sequencing



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**High-value
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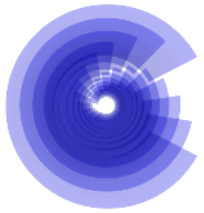
Tools
High-growth
revenue today

Synthetic
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Next-Gen
Sequencing

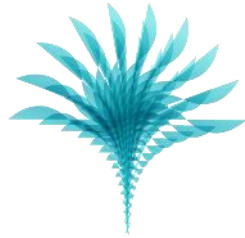


Synthetic Bio: Largest Selection of DNA Offered



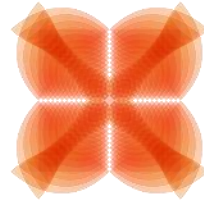
Genes

Clonal
Non-clonal fragments
Clonal-ready gene
fragments



Oligo Pools

sgRNA



Variant Libraries

Site saturation
Combinatorial



Pharma / Biotech Solutions

DNA preps
IgG





Innovative Buying Experience

T

M

CLONAL GENES

My Genes Project

OVERVIEW > GENE IMPORT > PRICING & SCORE

Change Vector ▾

+ Flanks

Optimize

+ Genes

+ Custom Vector

Q

#	<input type="checkbox"/>	NAME ▾	SEQUENCE	BP	VECTOR	SCORE ⓘ	PRICE
1	<input type="checkbox"/>	gene-001	ACTCGACTGACTAGC...	1264	Select Vector ▾	●	\$113.76
2	<input type="checkbox"/>	gene-002	ACTCGACTGACTAGC...	1014	Select Vector ▾	●	\$91.26
3	<input type="checkbox"/>	gene-003	ACTCGACTGACTAGC...	978	Select Vector ▾	●	\$88.02
4	<input type="checkbox"/>	gene-004	ACTCGACTGACTAGC...	848	Select Vector ▾	●	Fix it
5	<input type="checkbox"/>	gene-005	ACTCGACTGACTAGC...	1200	Select Vector ▾	●	\$108.00
6	<input type="checkbox"/>	gene-006	ACTCGACTGACTAGC...	1124	Select Vector ▾	●	\$101.16
7	<input type="checkbox"/>	gene-007	ACTCGACTGACTAGC...	1200	Select Vector ▾	●	Fix it
8	<input type="checkbox"/>	gene-008	ACTCGACTGACTAGC...	1087	Select Vector ▾	●	\$97.83
9	<input type="checkbox"/>	gene-009	ACTCGACTGACTAGC...	1200	Select Vector ▾	●	\$108.00

32 GENES • 26,400 BP

All (240)

● Easy (24)

● Difficult (4)

● Error (2)

● Not Possible (2)

PRICING SUMMARY ⓘ

NAME	QTY	COST
Easy Genes	24	\$2,376.00
Cloning Fee	24	\$1,300.00

DELIVERY FORMAT

☒ Plate: 96 Well, Horizontal

☐ Tube [Edit](#)

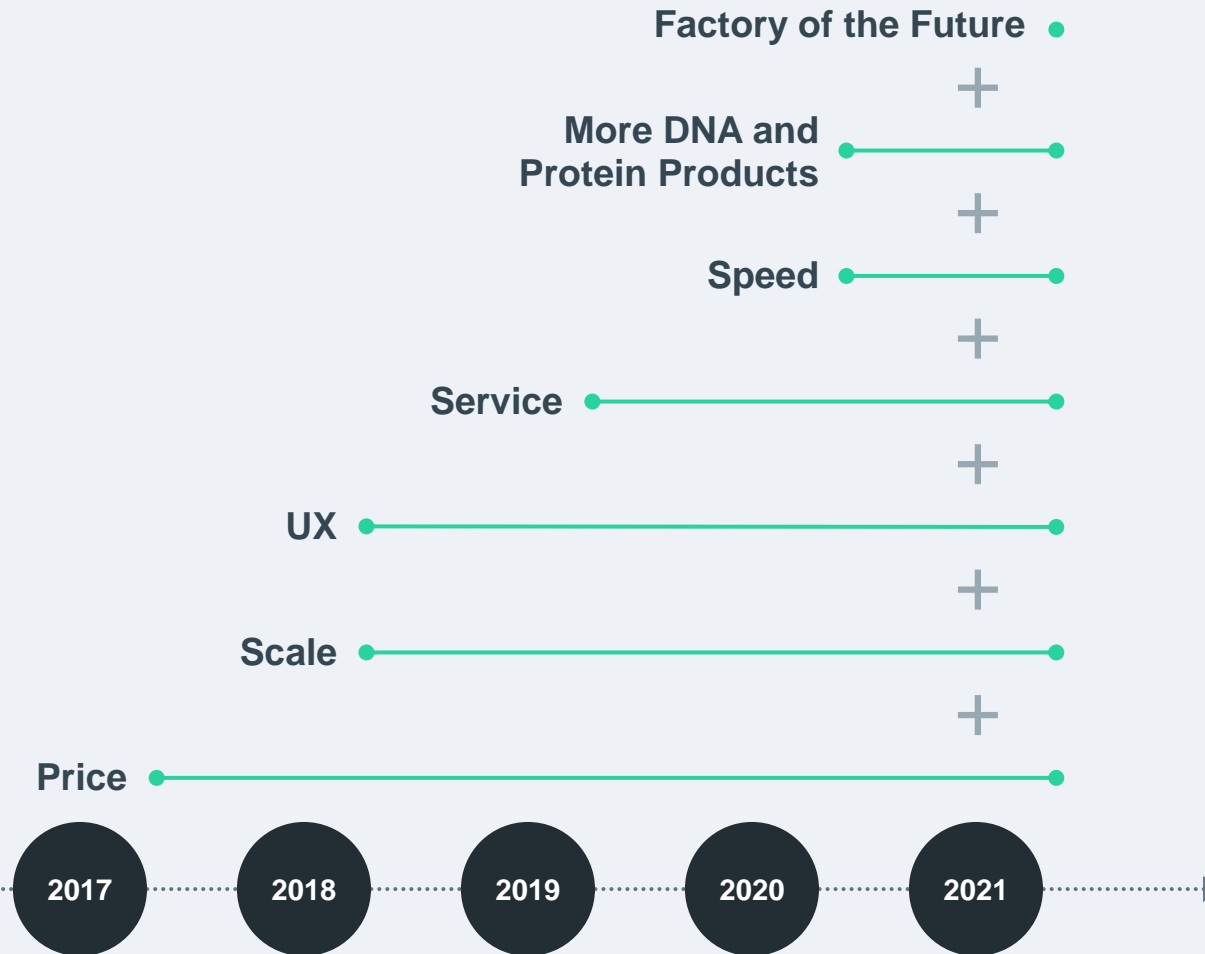
Total

\$3,676

Checkout



Synthetic Bio: Why We Win



We Deliver

- High-quality DNA
- Competitive turnaround times
- Affordability
- High throughput
- Unique customer experience
- Innovative products and solutions



“Twist’s very high-throughput platform allowed us to quickly and efficiently examine thousands of possible antibodies in order to select the best results faster than ever before.”

Robert Carnahan, Associate Director,
Vanderbilt Vaccine Center



Synthetic Bio: Scratching the Surface

FY20 Proof Points

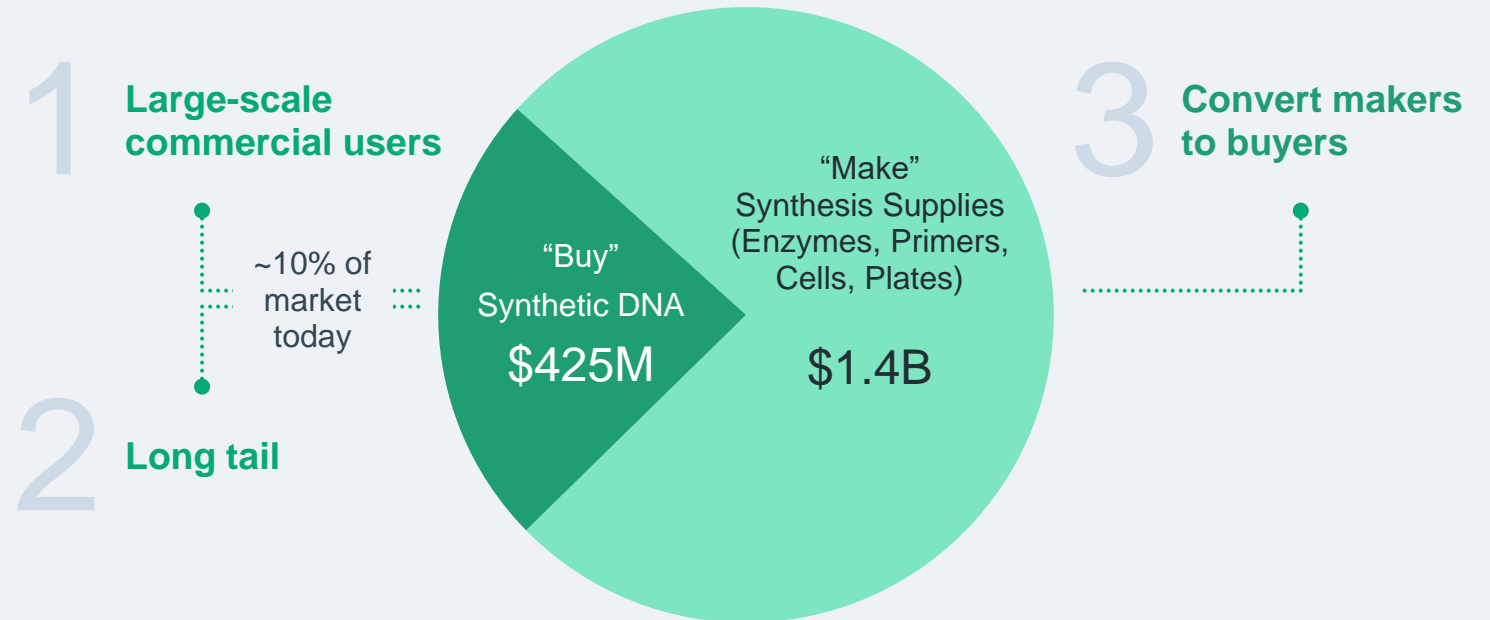
1,590
Customers

339K
Genes shipped

99%
Orders via ecommerce

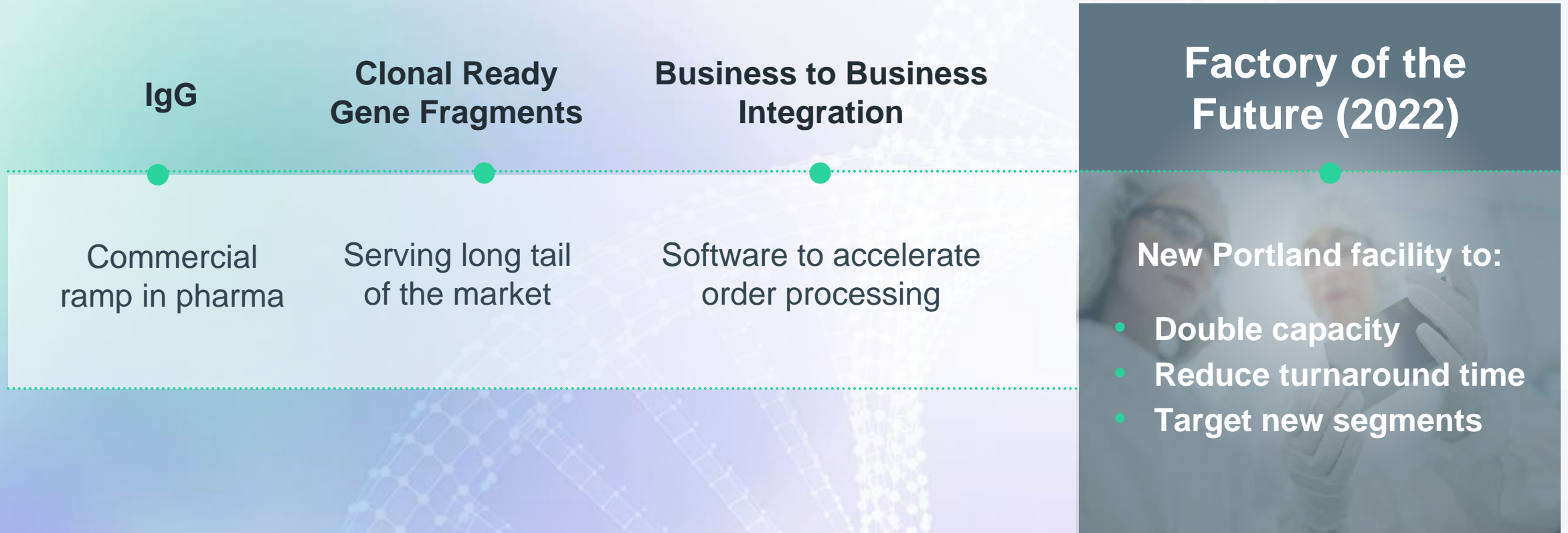
Strategy to Capture Large Market Potential

\$1.8B / year





Synthetic Bio: Roadmap to Expand Our Leadership





NGS: Broad Offering to Meet Expanding Applications

Today



Human Core Exome



Fixed Panels



Custom Panels



Library Preparation



Reagents and Kits



Synthetic Viral Controls



Targeted Methylation (early access)

Targeted Sequencing

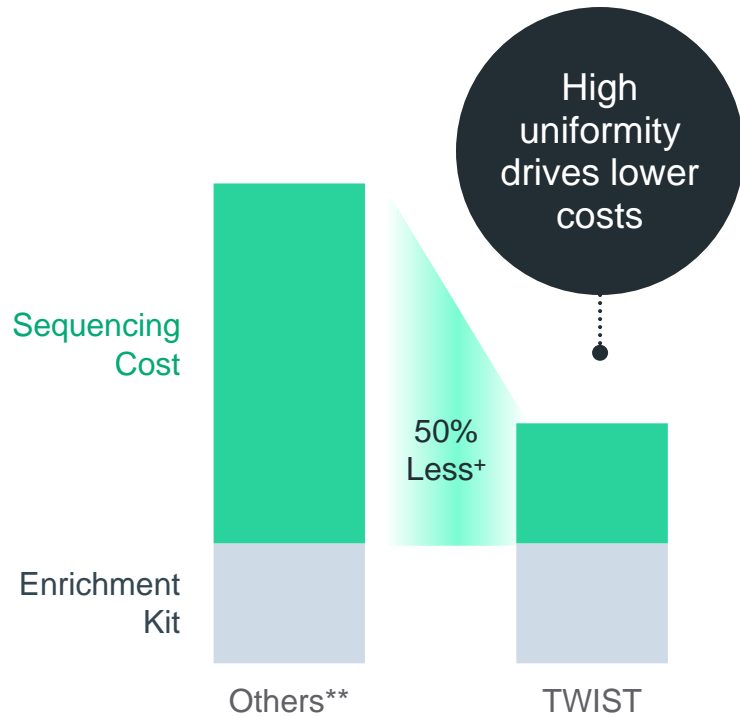
is powering new applications

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

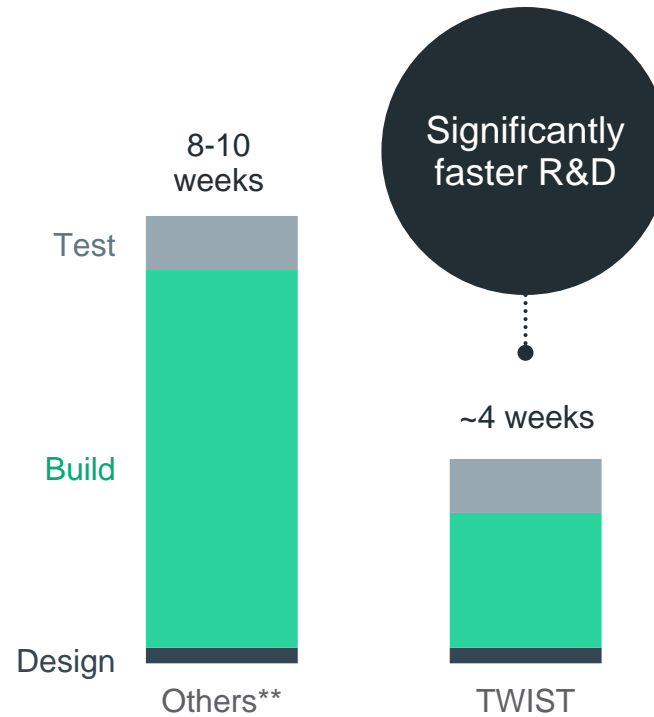


NGS: Why We Win

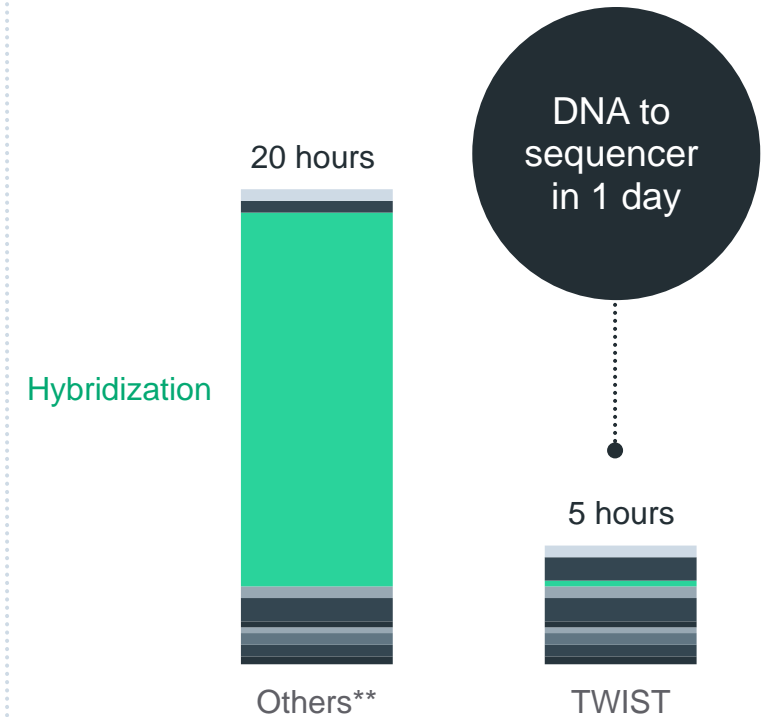
Low Cost per Sample



Rapid Customization



Fast Throughput*



⁺ Based on customer testimonial and Twist's experience

^{*} Includes pooling, pre-hybridization, hybridization, binding, wash steps, amplification, purification, target environment QC, and NGS prep

^{**} Illustrative models based on Twist's knowledge of competing technologies.



NGS: Investing in Growth

FY20 Proof Points

>1,000

Customers shipped

55

in production

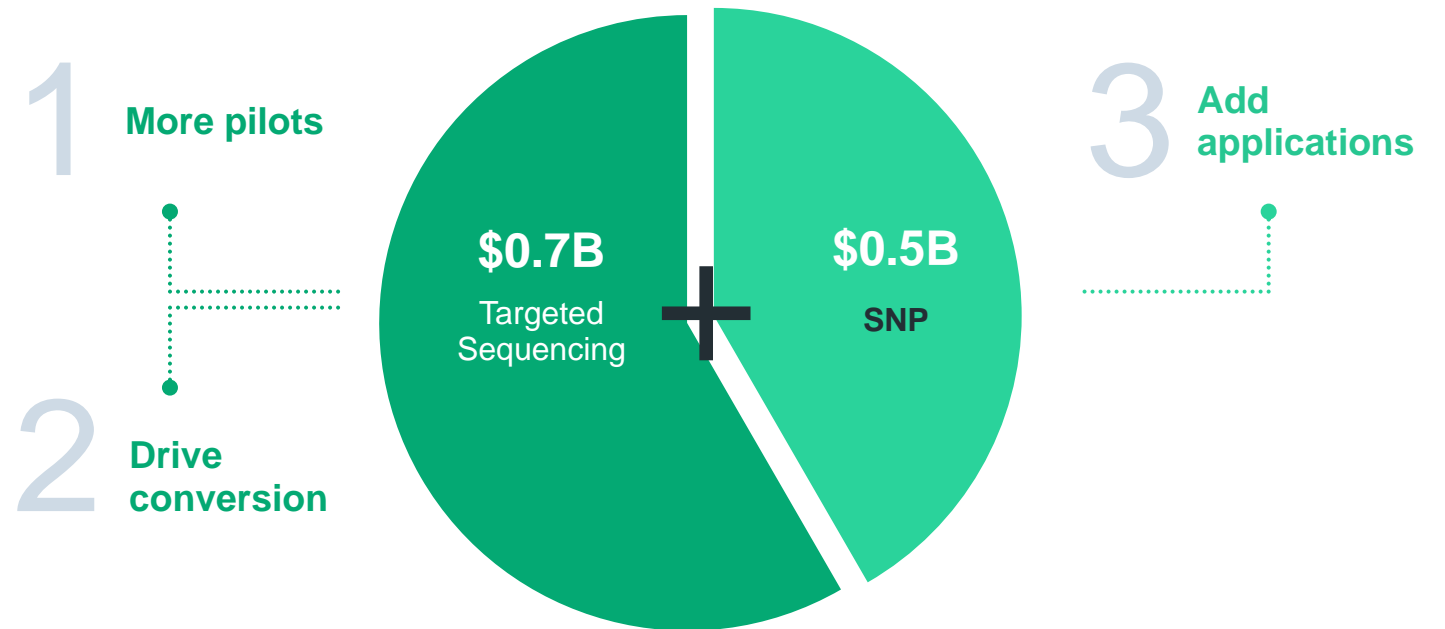
13

OEM partners

3

SNP microarray conversion

Strategy for Expanding Market to >\$1B





NGS: A New Era in Epigenetics - Twist Methylation Sequencing

New Solutions for Methylation Sequencing:



Exceptional Performance



Unparalleled Uniformity



Sensitivity



Rapid Panel Iteration

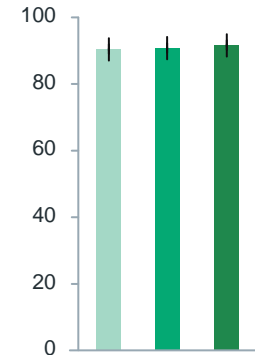


Design Flexibility

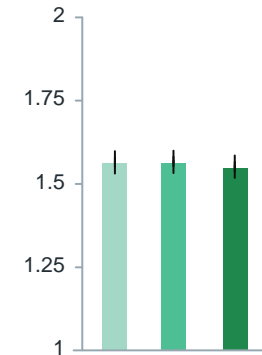


End-to-end Workflow with Gentle Enzymatic Conversion

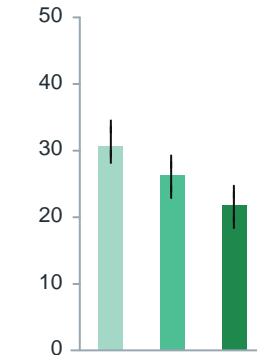
30x Coverage (%)



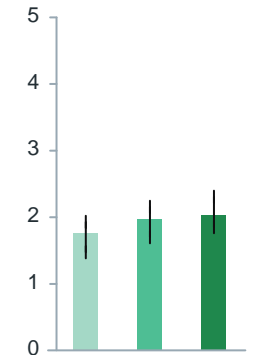
Fold-80 Base Penalty



Percent Off Bait (%)



Duplicate Rate (%)



Low Medium High

Stringency

Quantitatively Tune On-target Performance:

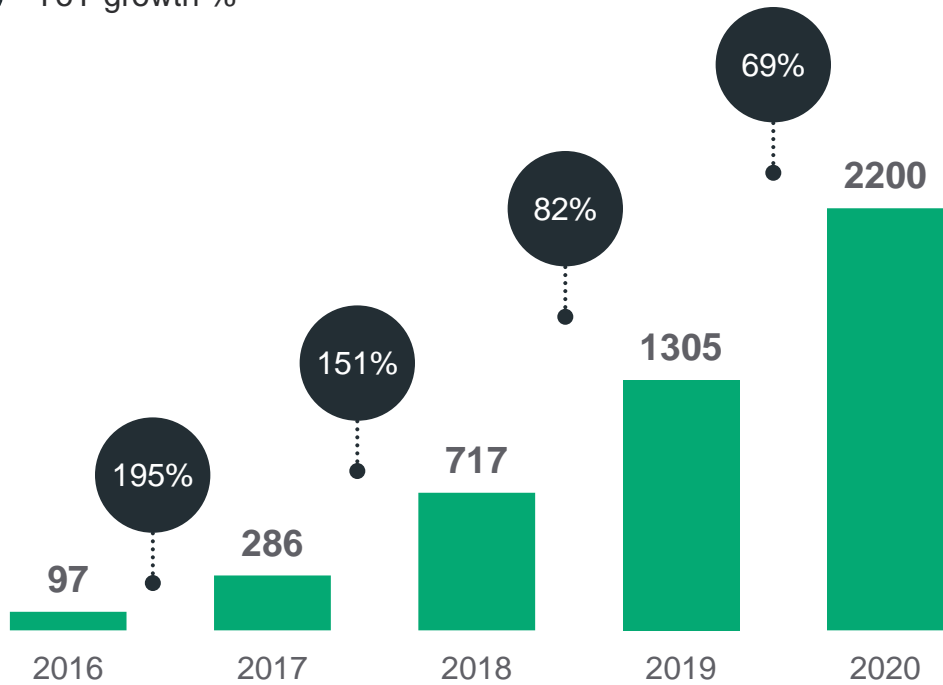
Stringency Control for High Quality Pre-optimized Designs



Core Business Growth

Total Customers (SynBio & NGS)

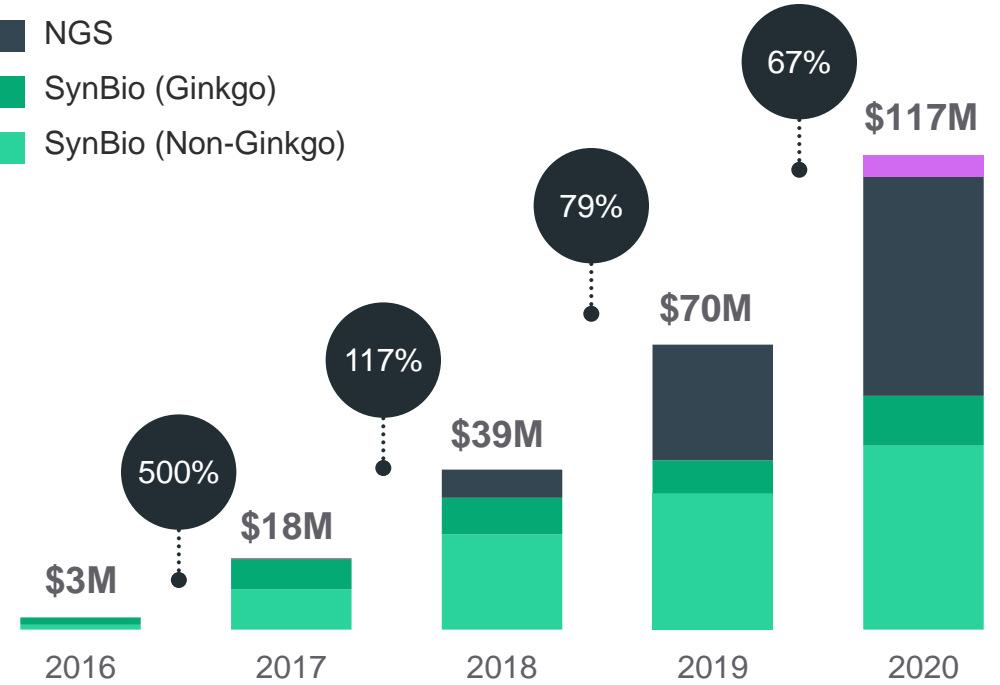
● YoY growth %



FISCAL YEAR

Orders

- Biopharma
- NGS
- SynBio (Ginkgo)
- SynBio (Non-Ginkgo)



FISCAL YEAR



We are Building a Diverse Portfolio of Businesses



Drug
Discovery

Data
Storage

**High-value
solutions**
Future upside

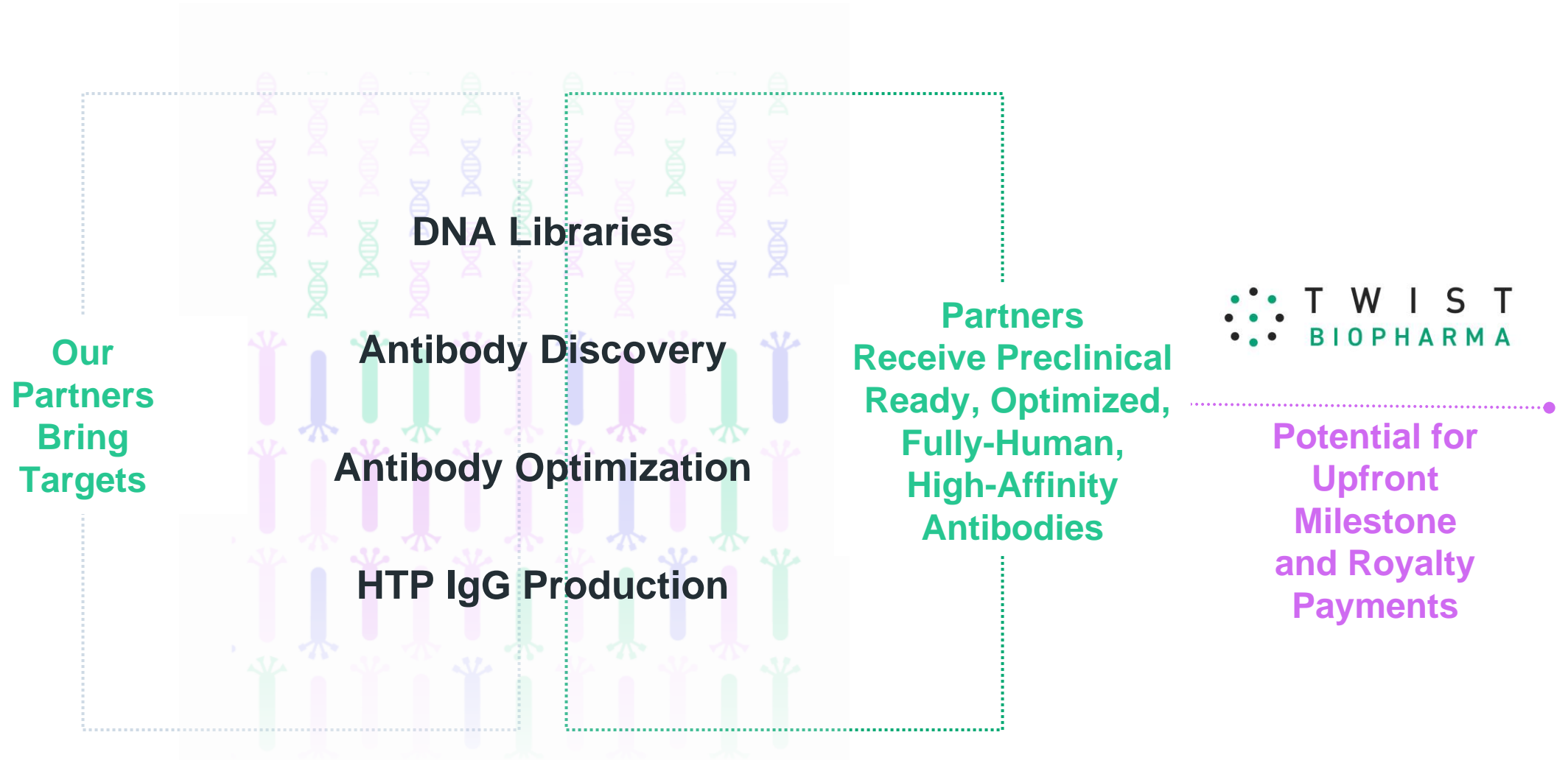
Tools
High-growth
revenue today

Synthetic
Biology

Next-Gen
Sequencing



Biopharma: Validated and Expanding Offering





Biopharma: Why We Win

Everyone Else



TWIST

Library of
libraries
fully validated
targets

Everyone Else



TWIST



Everyone Else



TWIST



Broad “DNA” Buffet

Allowing us more shots on
goal with more diversity

Every Sequence Always Explicitly Synthesized






Never random:
All our DNA is human-derived
and higher quality,
following human repertoire rules

Miniaturization and Automation

Increasing efficiency and speed of
key process steps, including library
production, screening,
reformatting, and functional &
affinity testing



Biopharma: Advancing Business Models with Partners

	INDICATION	MODALITY	LIBRARY OF LIBRARIES >	DISCOVERY >	OPTIMIZATION >	PRECLINICAL DEVELOPMENT >	IND
	Autoimmune and inflammatory disease	Bispecific Antibody					
	Optimization of cat and dog therapeutics	Antibody					
	Antibody discovery for range of applications	Antibody/Peptide					
	Immuno-oncology	Bispecific Antibody					
	Cancer therapeutics	Antibody/TCR					
Undisclosed	Dermatology	Protein Engineering					
Undisclosed	Industrial enzymes	Enzyme					
Undisclosed	Infectious disease	Engineered Enzyme					
Undisclosed	Infectious disease	Antibody					
Undisclosed	Neuroscience	VHH, Antibody					
Undisclosed	Neuroscience	VHH, ADC					
Undisclosed	Neuroscience	Antibody					
Undisclosed	Neuroscience	Antibody					



Biopharma: Pipeline of Preclinical-Ready Functional Monoclonal Antibodies

TARGET	INDICATION
GLP1R	Diabetes & rare metabolic diseases
PD1	Immuno-oncology
TIGIT	Immuno-oncology
CD3	Immuno-oncology
ADORA2A	Immuno-oncology
CXCR4	Oncology
ACE2	COVID-19
SARS-CoV-2 S1	COVID-19
SARS-CoV-2 N	COVID-19

**Leveraging
Twist platform to discover
functional monoclonal
antibodies against high value
targets**

Open to engaging in licensing
& partnering discussions for
these assets



DNA WRITING
ON SILICON



Biopharma: Immuno-oncology Target ADORA2A

Checkpoint Inhibitor Market is Growing Rapidly

This market is expected to reach \$40 billion by 2025

Significant Unmet Needs Remain

Only ~20-30% of eligible cancer patients benefit from first generation checkpoint inhibitors

Large Opportunity for Novel Immunotherapies

Twist can rapidly discover and optimize antibody-based immunotherapy leads across oncology indications

Adenosine A2a Receptor (ADORA2A)

Adenosine pathway is a **master checkpoint** in the tumor microenvironment

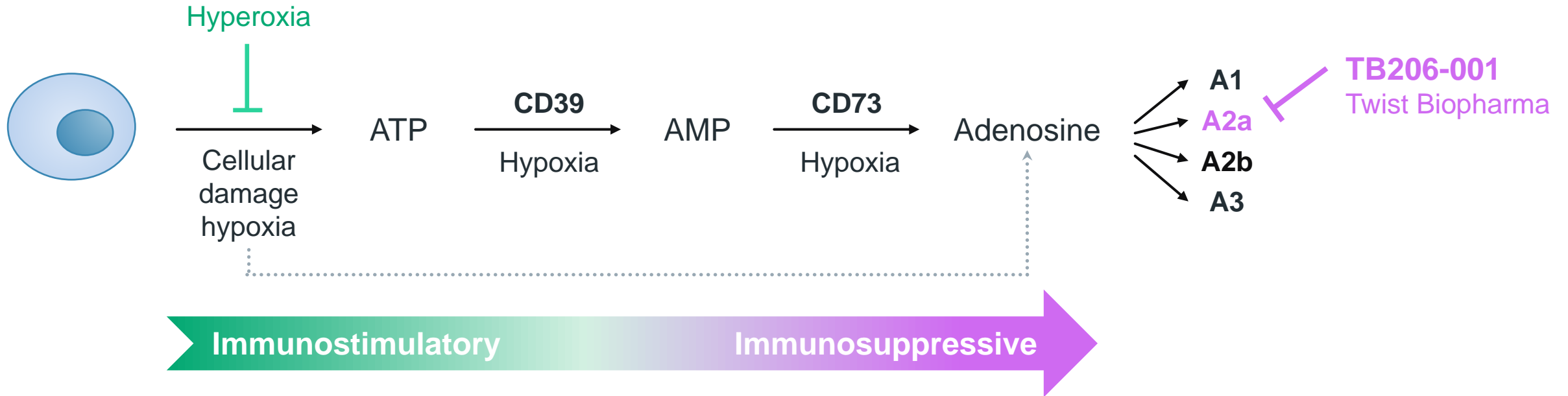
Highly expressed in:

Lung
Colorectal
Prostate cancer

A2a antibody antagonist has the potential to have high potency and specificity, improved dosing, and low CNS permeability



Biopharma: Adenosine Pathway Targets Master Checkpoint in TME



Tumors can evade immune responses from first generation checkpoint inhibitors by usurping the adenosine pathway

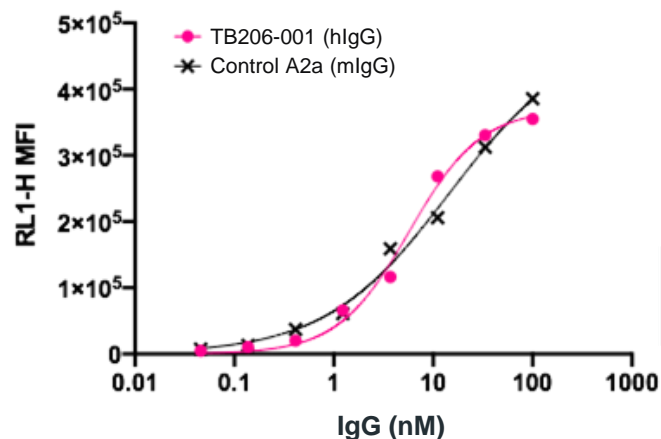
Incomplete inhibition of upstream enzymes in this pathway would still produce adenosine and thus drive immunosuppressive signaling

TB206-001 directly targets the A2a receptor, the primary adenosine receptor on immune cells, to block immunosuppression

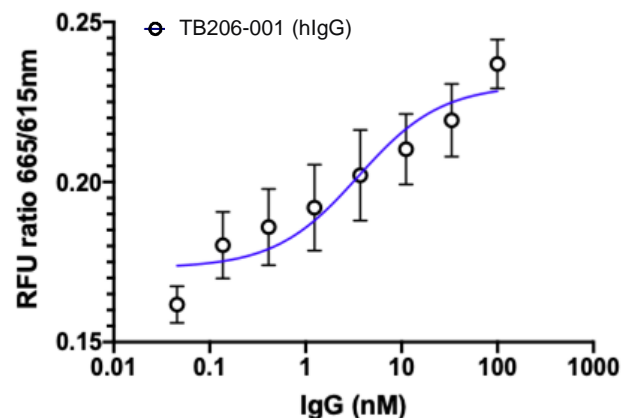


Biopharma: TB206-001 Potent A2a Antibody Antagonist Candidate

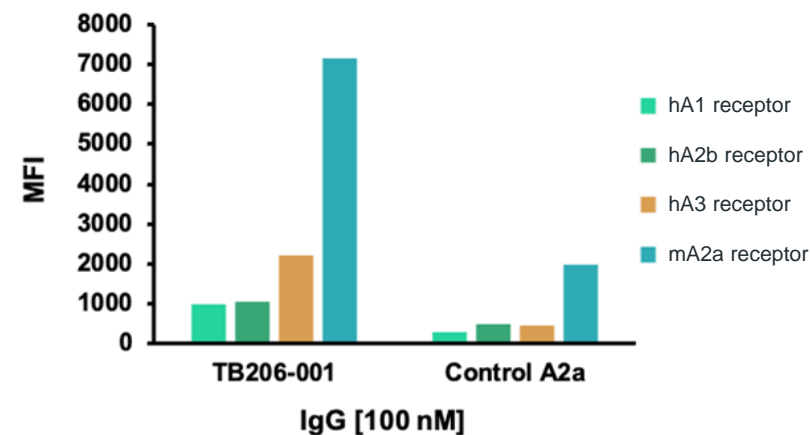
TB206-001 is a high affinity binder to hA2a receptor



TB206-001 is a functional antagonist *in vitro*



In vitro specificity with TB206-001 in cross reactivity study



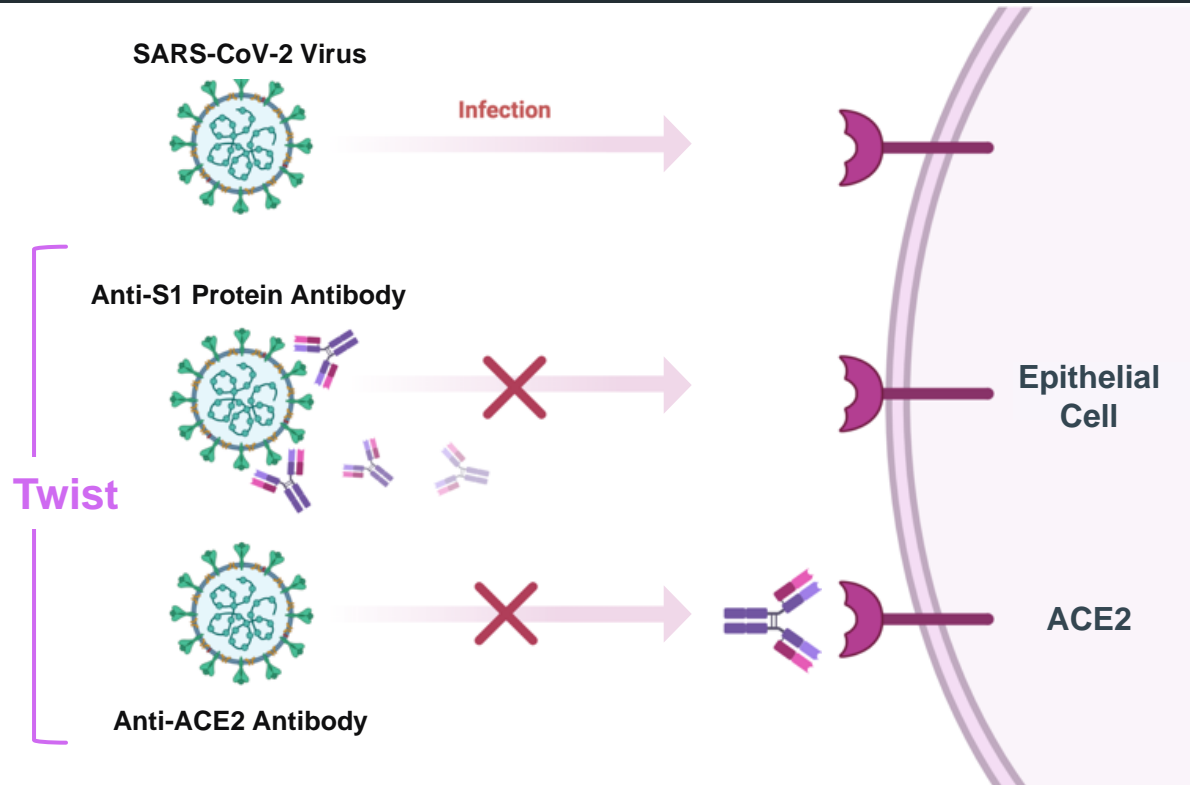
TB206-001 was screened against cells expressing each of the adenosine receptors. This lead is specific to A2a and is a human/mouse cross-reactive antibody.

We are optimizing and developing this preclinical lead candidate (TB206-001)



Biopharma: Rapid Discovery of SARS CoV-2 Antibodies

Our Focus



Novel Therapeutic Antibody Leads

IgG (TB181-8, 28, 36)
VHH (TB201-202)

Well-Characterized and Well-Validated

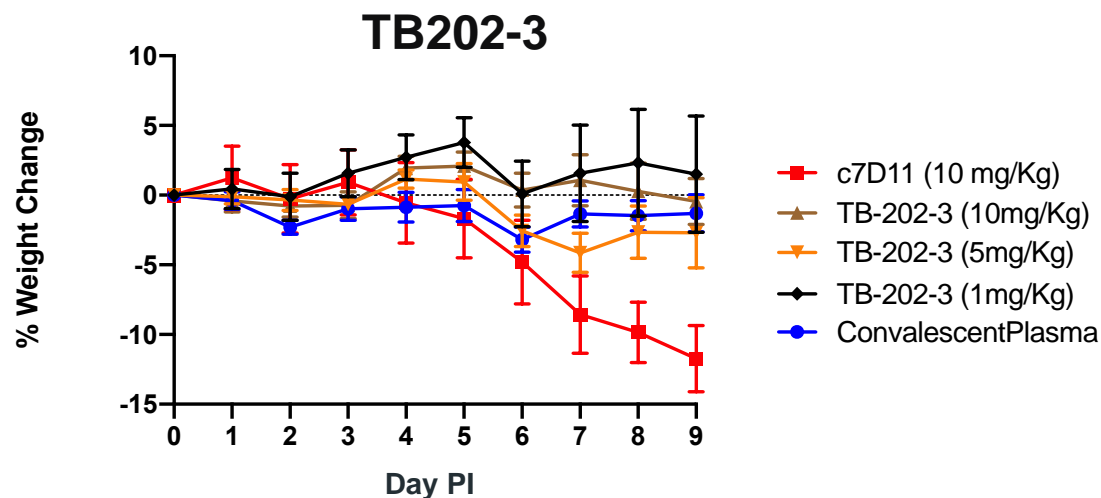
High-affinity and unbiased, with extensive pseudovirus and live virus, preclinical animal data



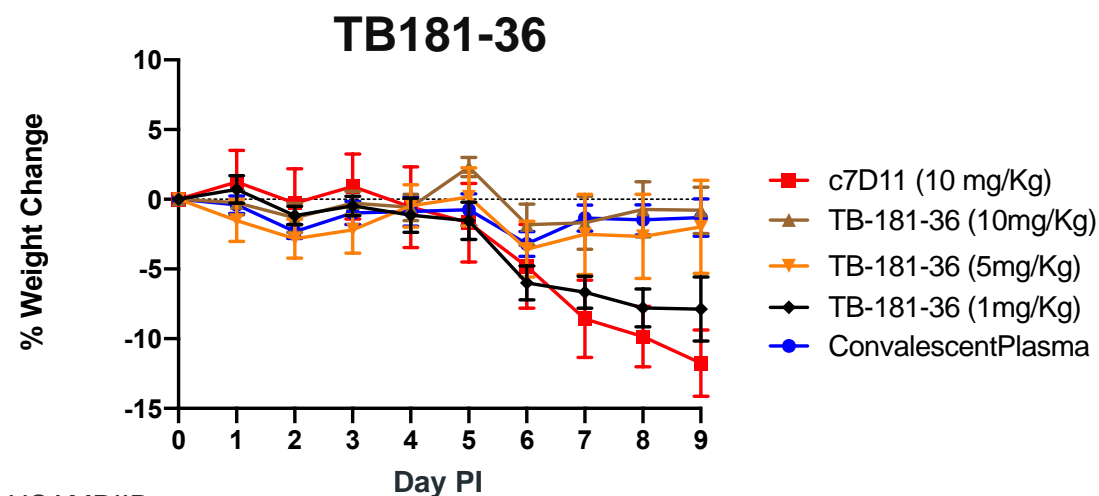
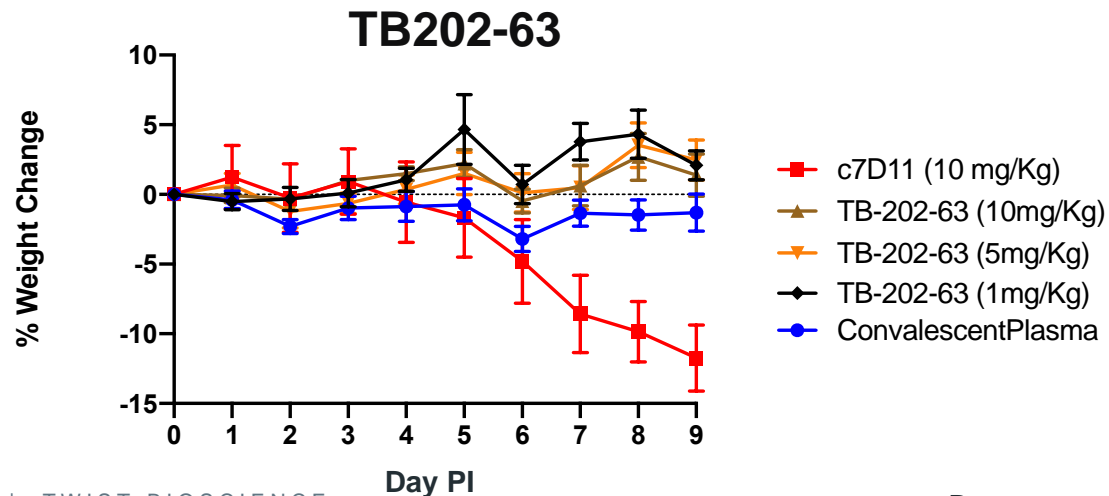
Biopharma: VHH Single Domain Leads (TB202-3, 63) and IgG Lead (TB181-36)

Show Potent *In Vivo* Activity in Hamster Model

TB202-3 and TB202-63 Protect Against Weight Loss at the Lowest Dose of 1 mg/kg



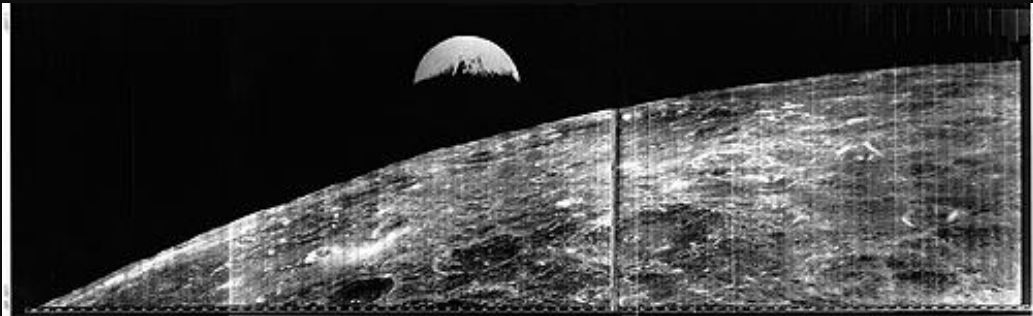
c7D11 = Negative control mAb
ConvalescentPlasma = Positive control





Data Storage in DNA

Recovered from Lunar Orbiter 1 Tapes



**DNA for
Archival Storage of
Digital Information**

**Permanence
Density
Random access
Universal format**



Data Storage: How It Works

1 Coding

00 → A
01 → G
10 → C
11 → T

2 Synthesis



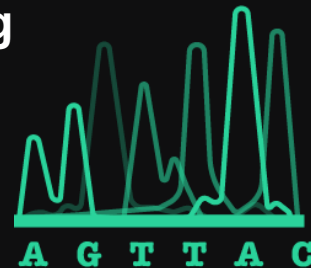
3 Storage



4 Retrieval



5 Sequencing

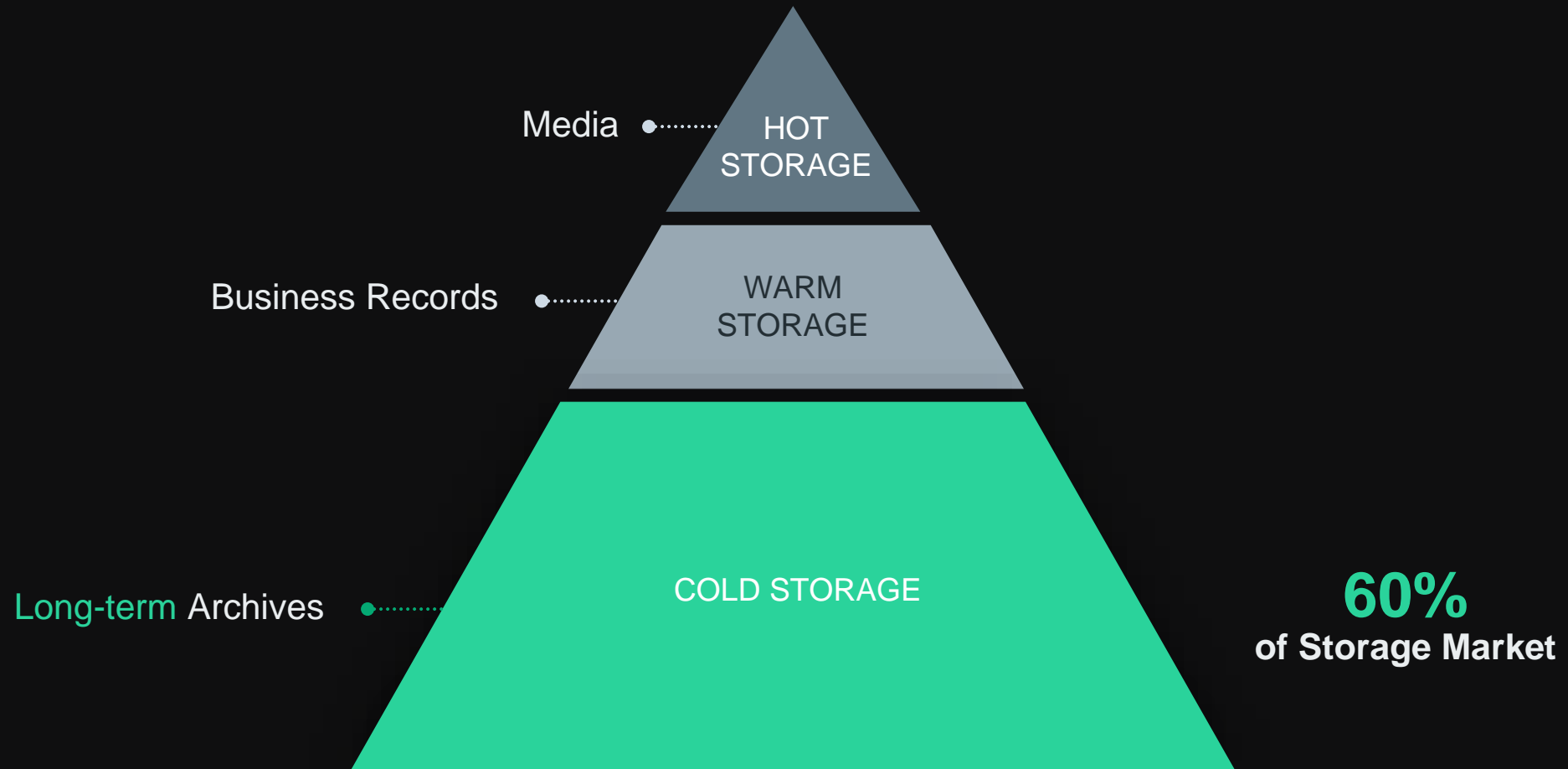


6 Decoding

A → 00
G → 01
C → 10
T → 11



Data Storage: \$35B Large Market Opportunity





Data Storage: Clear Development Path

OLIGO
SYNTHESIS
TECHNOLOGY
50µm:
\$1000/Mb

CHIP
DESIGN



CHIP
FABRICATION



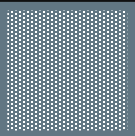
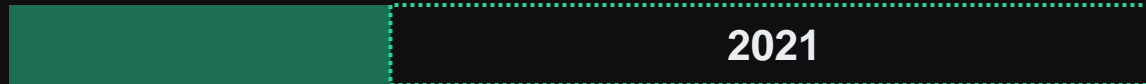
TEST &
DEBUG



10µm pitch



1µm pitch



150nm pitch



Proven Approach

Standard CMOS
Integrated Circuit
design and fabrication

PROTOTYPE
COMMERCIAL
PRODUCTION



DNA Data Storage Alliance

Industry Leaders Joining Forces to Advance DNA Data Storage

Twist Bioscience
Microsoft

Illumina
Western Digital

DNA Script
Catalog DNA
IMEC
Molecular Assemblies
Ansa Biotechnologies

EPFL
Claude Nobs Foundation
University of Washington
ETH Zurich
Iridia

Generate industry roadmap
Develop use cases
Educate for broader awareness and adoption

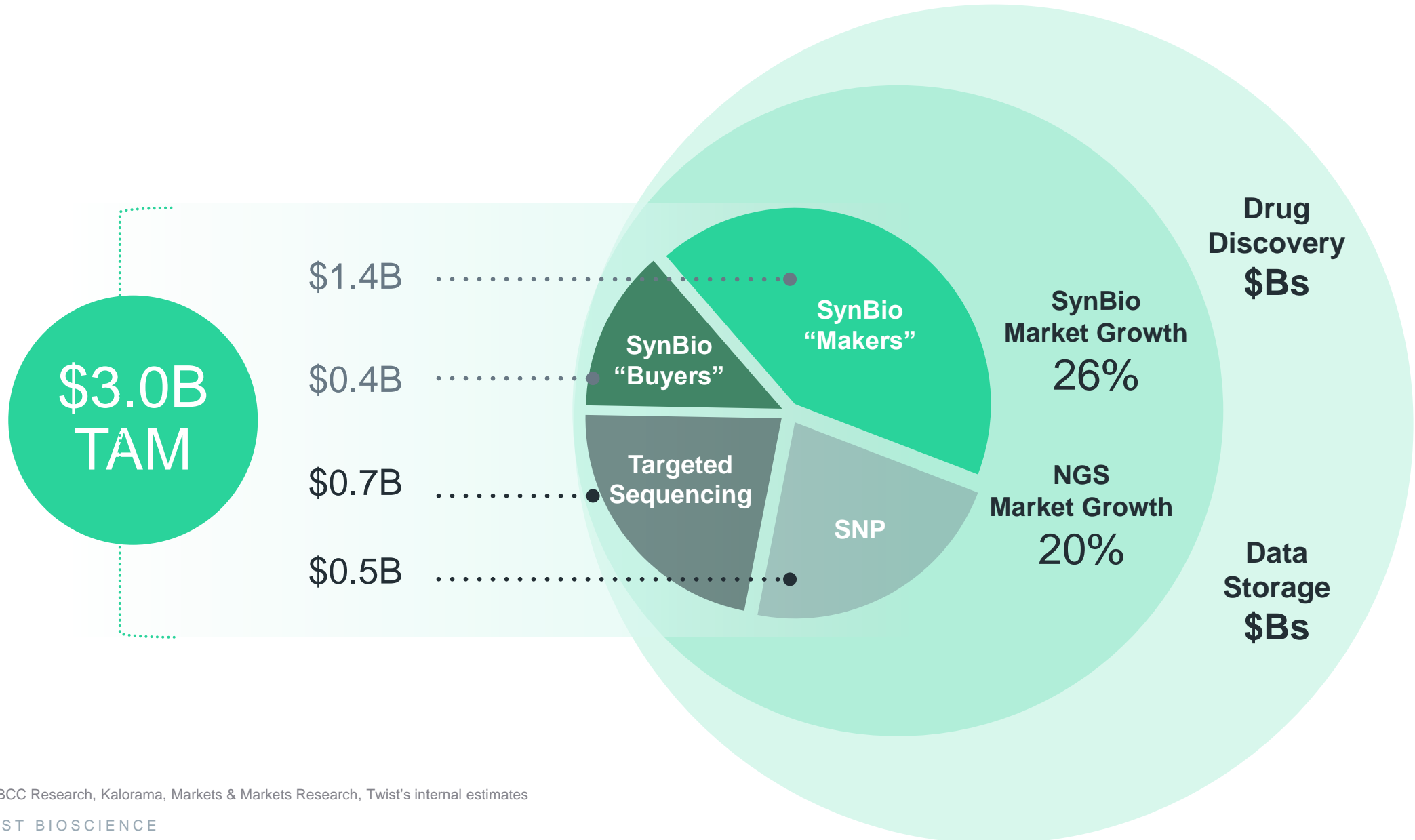
by 2024

30%
of digital business
will mandate DNA
storage trials

– GARTNER, OCT. 2020



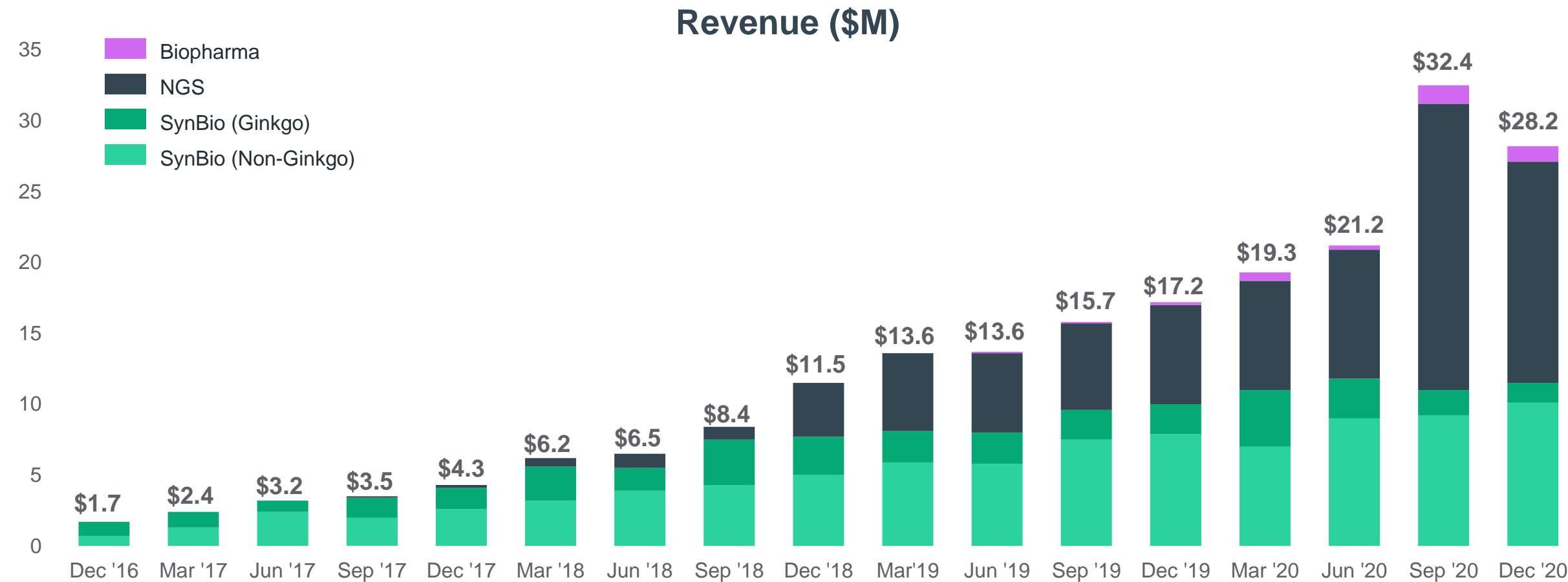
Large and Expanding Addressable Market



Source: BCC Research, Kalorama, Markets & Markets Research, Twist's internal estimates



Quarterly Revenue Growth



FY Ends September 30



Making our Vision a Reality Near Term Objectives

Synbio

- Focus on continued growth and diversification of revenue stream
- Ramping pharma-focused products, including DNA preps and IgG
- Launch of clonal ready gene fragments
- B2B solutions to allow capture of specific multi-site institutions
- Significant investment in “Factory of the Future”
- Expand OEM Strategy

NGS

- Continued revenue growth and customer ramping production
- Full launch of methylation solution
- Technical addition of UMIs
- Continued conversion of SNP Microarrays to NGS + sequencing
- Expand OEM Strategy

Biopharma

- Additional partnerships to expand technology base and generate revenue
- Additional internal pipeline of antibodies, pursuing out licensing opportunities over the next 18 months

Data Storage

- Drive technology forward, demonstration of 300 nanometer silicon synthesis on 1-micron pitch
- Execute on IARPA contract

Expand and Accelerate Internal Efforts and Inorganic Investment to Help Ensure Long-term Leadership



Writing the Future

Platform for writing DNA on silicon

Large, growing markets

Differentiated value proposition

Portfolio of high growth businesses

Validated business models

High revenue growth

Track record of execution and innovation



Writing the Future

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