Applied DNA Sciences, Inc.

NASDAQ: APDN

July 2021

Safe Harbor

The statements made by Applied DNA in this presentation may be "forward-looking" in nature within the meaning of Section 27A of the Securities Act of 1933, Section 21E of the Securities Exchange Act of 1934 and the Private Securities Litigation Reform Act of 1995. Forward-looking statements describe Applied DNA's future plans, projections, strategies, and expectations, and are based on assumptions and involve a number of risks and uncertainties, many of which are beyond the control of Applied DNA. Actual results could differ materially from those projected due to its history of net losses, limited financial resources, limited market acceptance, the uncertainties inherent in research and development, future clinical data and analysis, including whether any of Applied DNA's or its partner's diagnostic or therapeutic candidates will advance further in the preclinical research or clinical trial process, including receiving clearance from the U.S. Food and Drug Administration (U.S. FDA), the U.S. Department of Agriculture (USDA) or equivalent foreign regulatory agencies to conduct clinical trials and whether and when, if at all, they will receive final approval from the U.S. FDA, the USDA or equivalent foreign regulatory agencies, the unknown outcome of any applications or requests to U.S. FDA, USDA, equivalent foreign regulatory agencies and/or the New York State Department of Health, the unknown limited duration of any Emergency Use Authorization (EUA) approval from U.S. FDA, changes in guidances promulgated by the CDC, FDA and/or CMS relating to COVID-19 surveillance testing, disruptions in the supply of raw materials and supplies, the unknown ability to manufacture the vaccine candidates in large quantities, the fact that the safety and efficacy of the vaccine candidates has not yet been established, the unknown ability of the vaccine candidates to generate revenue or profit for Applied DNA, the fact that there has never been a commercial drug product utilizing PCR-produced DNA technology approved for therapeutic use, and various other factors detailed from time to time in Applied DNA's SEC reports and filings, including our Annual Report on Form 10-K filed on December 17, 2020, Quarterly Reports on Form 10-Q filed on February 11, 2021 and May 13, 2021, and other reports we file with the SEC, which are available at www.sec.gov. Applied DNA undertakes no obligation to update publicly any forward-looking statements to reflect new information, events, or circumstances after the date hereof or to reflect the occurrence of unanticipated events, unless otherwise required by law.

Executive Summary

We've Reported Outstanding Results In a Challenging Environment

1H21 revenues up 262% YoY; FQ2 revenues up 384% YoY and 65% Sequentially

We've Expanded our Diagnostics TAM (for COVID-19)

Asymptomatic Serial Screening, CLIA Certification, and SGS™ Mutation Panel

We're Creating Value with our LinearDNA™ Manufacturing Platform

Phase-linked cGMP Manufacturing Build-Out Ongoing, Progressing Vet. COVID-19 Vaccine Candidate

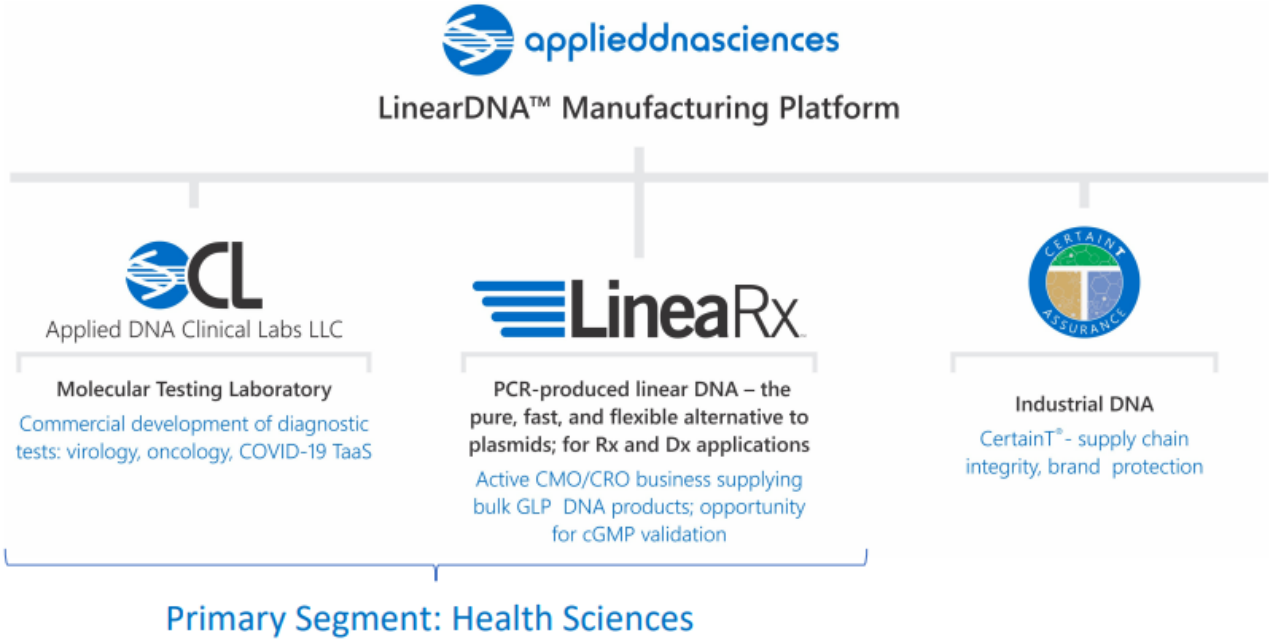
We're Preparing for the Resumption of Industrial DNA Demand

Pandemic Spent Building Business Base Across Textile Industry, Further Catalyzed by Forced Labor Issue

We're Focused on Three Priorities

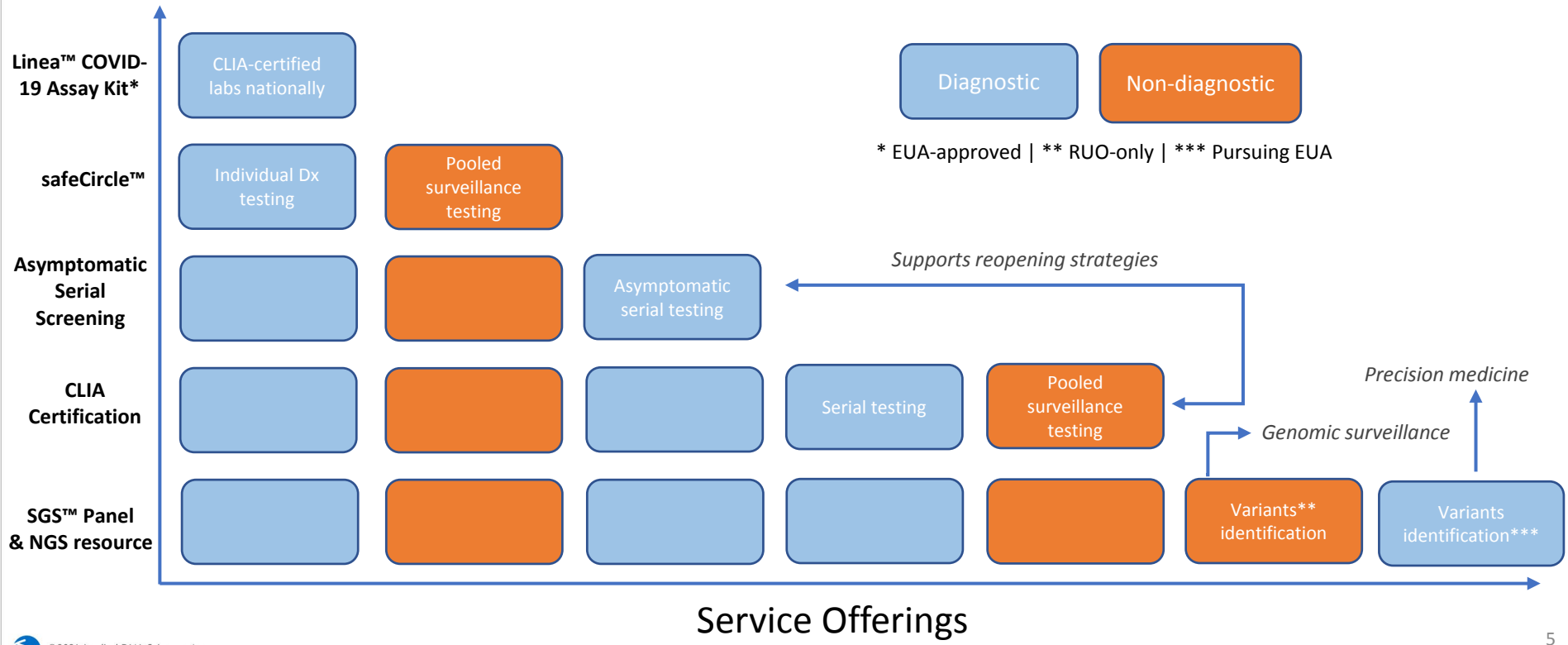
Invest in LinearDNA platform…Establish LinearDNA as Alternative to Plasmids…Grow Dx Products & Services

About Applied DNA



Strategy: Build organic growth engine comprised of ADCL and Industrial DNA; support commercialization of LineaDNA platform and development pipeline

Systematic Expansion of COVID-19 Offerings



COVID-19 Testing in a Post-Vaccinated Nation

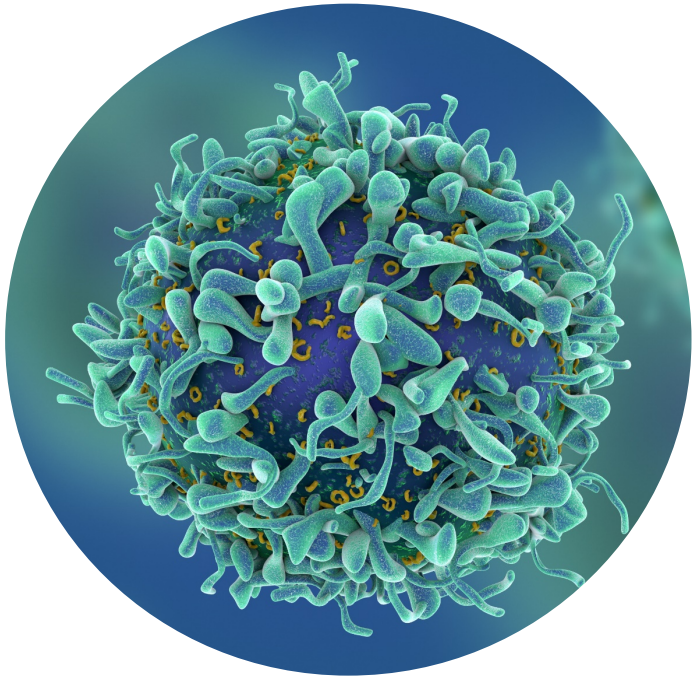
Our Expectations

1. New variants
2. Potential for increased transmissibility
3. Reduced efficacy of vaccines and front-line monoclonal antibody therapies
4. Persistence of unvaccinated populations
5. Availability of Federal funds for genomic surveillance

Go-Forward Approach

1. Retain COVID-19 focus across *Diagnostic Testing*, *Surveillance, Variant Penetration*
2. Emphasize rapid *Variant Identification*
3. Enhance offerings' value proposition:
   - Direct to Consumer
   - Multiplex assays to include URI pathogens (Influenza A, B, Common Cold, RSV, others)
   - Next Generation Sequencing service offered to NYS and regional hospitals
   - Development of LDT COVID-19Plus test that identifies positive COVID-19 and clinically relevant mutations in a single sample

Invasive Circulating Tumor Cells (iCTCs)



- Novel Liquid Biopsy Platform
- Currently Research Use Only
- Analyzing data obtained from assay use in several cancer clinical trials
- Unique iCTCs carry valuable biomarkers for liquid biopsy cancer diagnostics.
- With CLIA, we can develop a Lab Developed Test and seek approval from NYSDOH
- Then offer to Oncologists

LineaRx’s proprietary process enables large, gram-scale production of DNA through PCR for diagnostics and bio-based therapeutics.

No need for plasmids, reducing risks and unwanted DNA or contaminants that need to be removed.

Ability to undertake chemical modifications of DNA by Primer Modifications.

Focused on delivery to patient, delivery to nucleus, lipid nanoparticles under development

Pipeline includes Adoptive Cell Therapies, DNA Vaccines (including Cancer), CRISPR and other Nucleic Acid-based Therapies.

Can be lyophilized, stored at room temp and reconstituted for use.

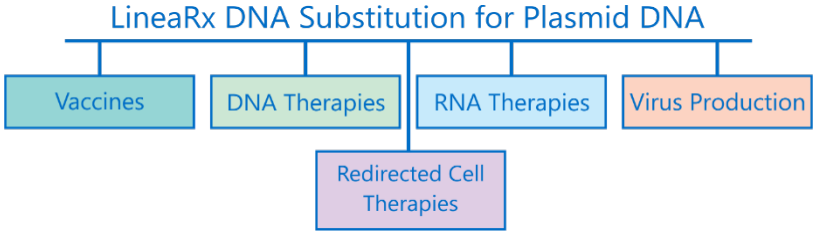
Active CMO/CRO business now supplying bulk GLP DNA products, progressing phased cGMP compliance.

LinearDNA™ Manufacturing Platform

Large-scale PCR-based DNA Production for Rx and Dx

- Proprietary process enables large, gram-scale production of DNA through PCR (polymerase chain reaction)
- Does not require recombination, hence, no need for virus
- No need for plasmids, reducing risks and unwanted DNA or contaminants that need to be removed

Therapeutic Applications of LinearDNA:



As a Substitute for DNA Production:

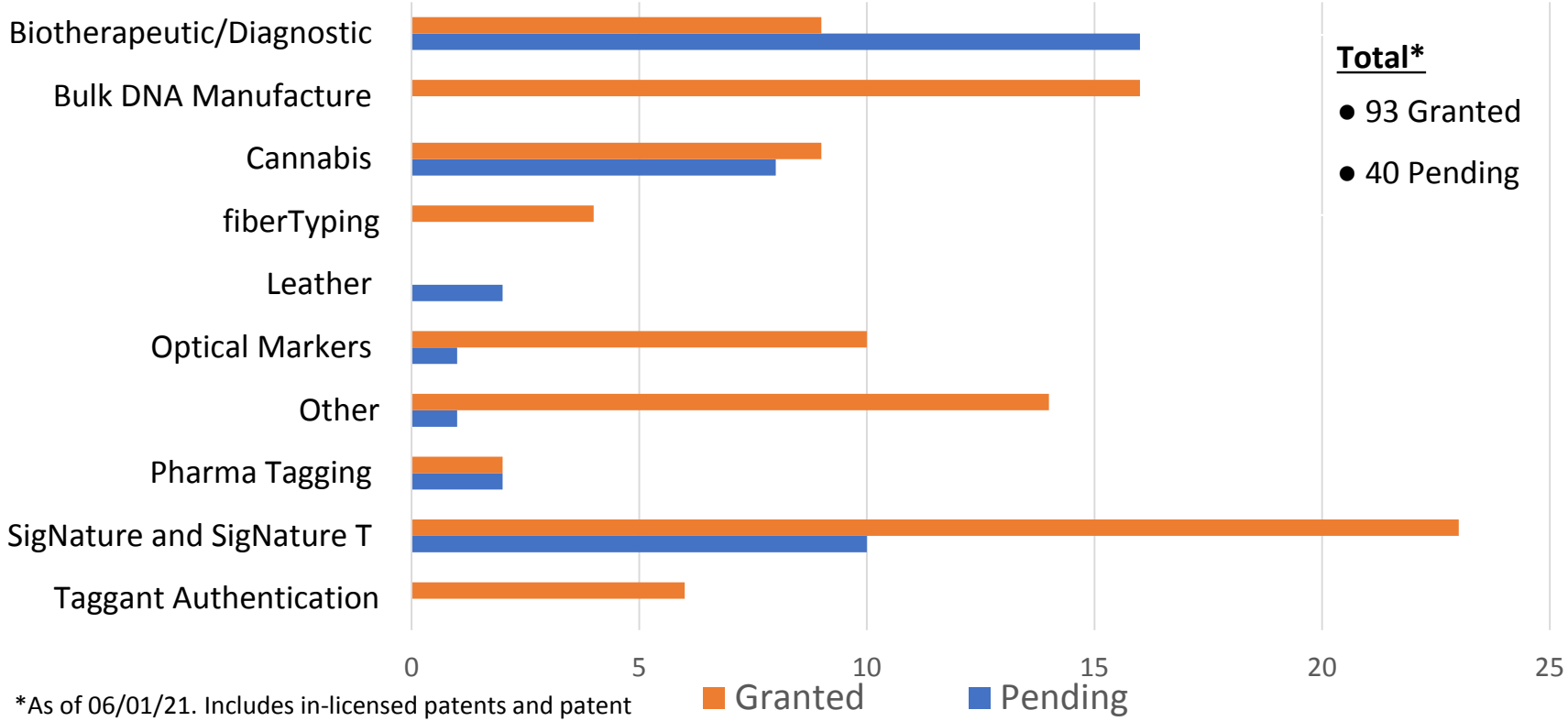
Attribute	LineaRx PCR DNA Production	Plasmid DNA Production
Risk of Antibiotic Resistance Transfer	No	Yes
Endotoxin	No	Yes
Cellular Purification Necessary	No	Yes
Fixed Yield	Yes	No
Manufacturing Timeframe	Hours	Days to Weeks
Ability to Undertake Chemical Modifications of DNA by Primer Modifications	Yes	No
Ability to Produce Long Homogenous Poly-A Tails (necessary as mRNA template)	Yes	No

Development Pipeline (inclusive of COVID-19)

Vaccine and Therapeutics

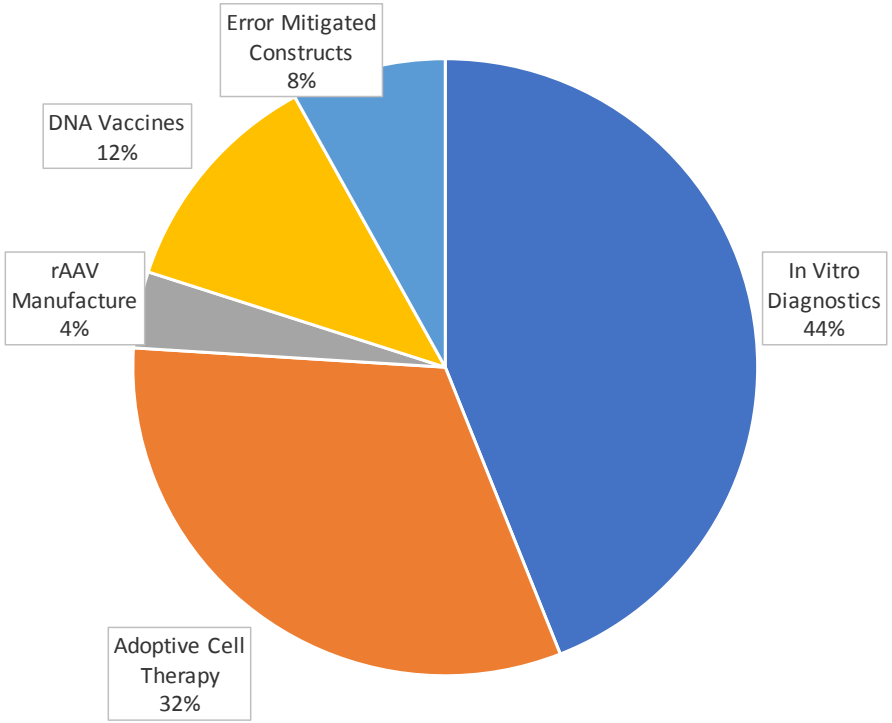
Preclinical		Clinical			Comments
Discovery	IND-enabling	Phase 1	Phase 2	Phase 3	
Veterinary Anti-Cancer Vaccine Candidate (w/Takis Biotech)					
LinearDNA COVID-19 Human Vaccine Candidates (with Takis Biotech)					• Yielded strong antibody and T cell responses even at low doses of linearDNA in mice • All five LineaDNA vaccine candidates provoked seroconversion in all mice to produce IgG against SARS-CoV-2 Spike protein by Day 14 and significantly enhanced responses by Day 38.
Anti-CD19b CAR T adoptive cell therapy					
LinearDNA COVID-19 Veterinary Vaccine Candidate (utilizes human LinearDNA COVID-19 vaccine development as basis)					Goal: USDA APHIS conditional license to use veterinary vaccine to prevent SARS-CoV-2 in animals. • Average 5X+ boost in NAbs produced with functional virus post-booster vaccination; every member of cohort produced Nabs • NABs also induced in 100% of trial cohort against B.1.1.7, P1, and B. 1.526 • Pivotal study for mustelid (minks, ferrets) USDA conditional licensure scheduled for August 2021.

Patent Estate



*As of 06/01/21. Includes in-licensed patents and patent

Biotherapeutic/Diagnostic Patents and Patent Applications*



*As of 06/01/21. Includes in-licensed patents and patent applications

Highlights

Multiple pending patent applications for:

- CAR T and TCR therapies based on PCR-produced LinearDNA
- PCR-produced LinearDNA™ vaccines
- High Expression Amplicon™
- Production of rAAV for gene therapy with LinearDNA. Unique optimization of PCR-based production of the ITR-flanked transgene construct.
- COVID-19 RT-PCR diagnostic assays and SARS-CoV-2 variant detection
- Large worldwide patent portfolio for iCTC technology
- Applications in the U.S. filed under Cancer Immunotherapy Pilot Program
- Multiple international PCT applications filed

Summary Financial Highlights

	For the 3 months ended March 31,		For the 6 months ended March 31,	
	2021	2020	2021	2020
Revenue				
Product revenues	$1.0	$0.2	$1.5	0.4
Service revenues	1.7	0.4	2.8	0.8
Total revenues	$2.7	$0.6	$4.3	$1.2
Total operating expenses	4.6	3.1	9.0	6.1
Adj. EBITDA	$(1.5)	$(2.6)	$(3.9)	$(5.0)

($ in Millions)

Balance Sheet (at 3/31/21)	
Cash and cash equivalents	$13.9
Total debt	$0.0
Total stockholders' equity	$18.6

Stock Metrics	
Recent share price	$6.36
Shares outstanding	7.48M
Warrants outstanding	~460,000

During January 2021, the Company raised net proceeds of $13.8 million in equity capital

Summary

- Multiple near-term catalysts:
  - Demand for COVID-19 diagnostics and testing services spurred by:
    - Reopening strategies
    - SARS-CoV-2 genomic surveillance of variants
  - SGS Mutation Panel EUA authorization pending
  - Launch of LinearDNA veterinary COVID-19 vaccine candidate ferret challenge trial, USDA APHIS mink application
  - Continuing alignment with buildout of phase-linked cGMP manufacturing capacity
- Multiple longer-term catalysts:
  - Return of increased demand patterns in Industrial DNA/supply chain security business
  - Growing adoption of LinearDNA
    - Transition from CRO to CMO and large-volume, larger dollar awards for bulk DNA manufacture
  - Commercialization LinearDNA-based diagnostics
    - iCTC capture technology as functional liquid biopsy assay for multiple cancers


Thank you!