Applied DNA Sciences, Inc.

NASDAQ: APDN

March 2022

Safe Harbor Statement

The statements made by Applied DNA in this press release 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, the substantial doubt about its ability to continue as a going concern, the unknown amount of revenues and profits that will result from any COVID-19 testing contract, the possibility that Applied DNA's assay kits could become obsolete or have its utility diminished, 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 therapeutic candidates will advance further in the preclinical research or clinical trial process, including receiving clearance from the U.S. Food and Drug Administration (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 FDA, the USDA or equivalent foreign regulatory agencies, the unknown outcome of any applications or requests to the 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 FDA and whether EUA approval will be granted by the FDA for our Linea™ 2.0 COVID-19 Assay and Linea™ Unsupervised At-Home Sample Collection Kit, changes in guidance promulgated by the CDC, FDA and/or CMS relating to COVID-19 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 in humans, 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 its Annual Report on Form 10-K filed on December 9, 2021, its Quarterly Report on Form 10-Q filed on February 10, 2022, and other reports it files 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.

At a Glance

appliedDNAsciences

LinearDNA™ Manufacturing Platform

Industrial DNA

CertainT® - supply chain integrity, brand protection

PCR-produced linear DNA – the pure, fast, and flexible alternative to plasmids; for Rx and Dx applications

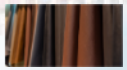
Active CMO/CRO business supplying bulk GLP DNA products; opportunity for cGMP validation

Molecular Testing Laboratory

Commercial development of diagnostic tests: virology, oncology, COVID-19 TaaS

Strategy: Industrial DNA and ADCL to support ***development and commercialization of LinearDNA platform as alternative to plasmid DNA for nucleic acid-based therapies***

Textiles in FY22

		Activity Level
rPET		*Pre-Commercial Trial*
Thread		*Pre-Commercial Trial*
Cotton		BED BATH & BEYOND COSTCO WHOLESALE
Leather		*Pre-Commercial Trial*
Down & Feather		*Pre-Commercial Trial*

\+ *Scale-up of Pre-Commercial Trials*

 apparel

 footwear

 accessories

Diagnostics Strategy

Near-term:
COVID-19

Long-term:
Molecular and Genetic Tests

Offering Expansion

Durable Markets

Skilled Nursing Facilities

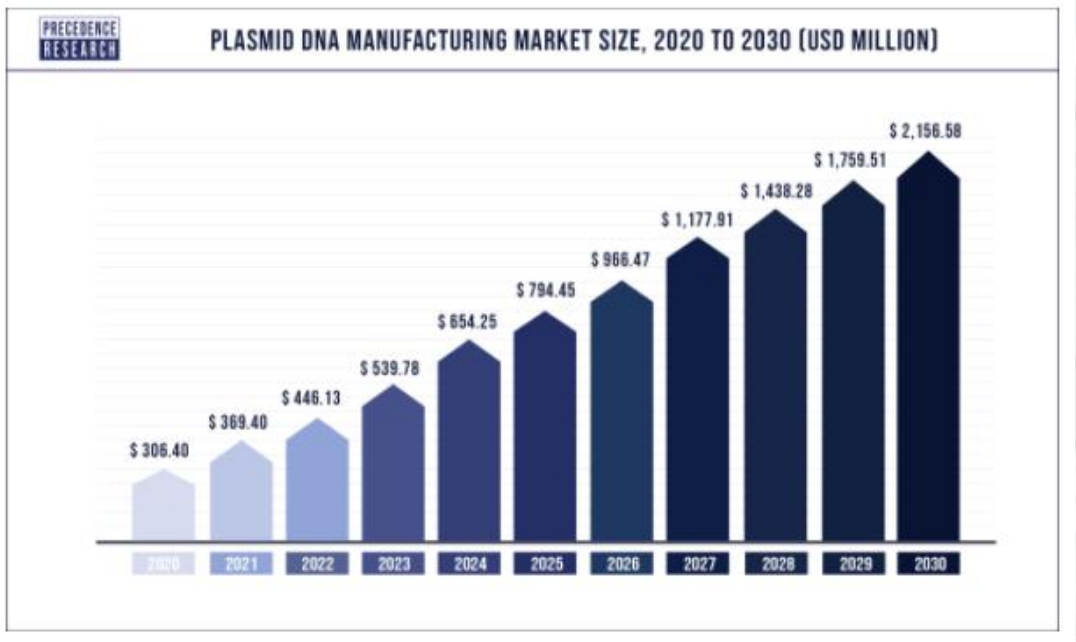
Return-to-Work

Geographic Expansion

* Authorized as an LDT in New York State; FDA EUA authorized for serial screening
** FDA EUA authorization pending

a window of opportunity

Market Analysis – Plasmid DNA



Source: Precedence Research Plasmid DNA manufacturing Market, October 2021

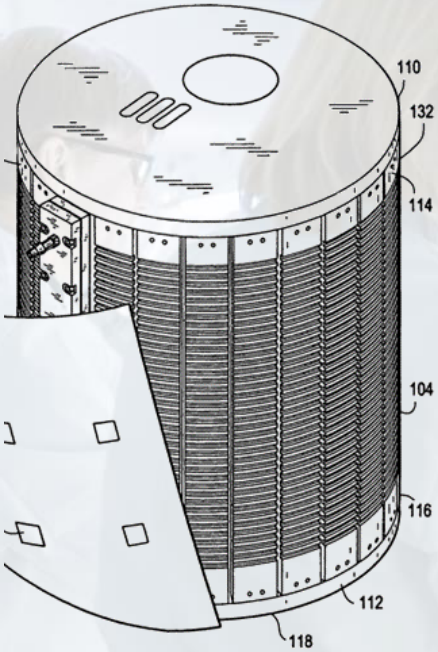
- Plasmid DNA market valued at $306m in 2020 and expected to grow at CAGR of 21.7%, reaching over $2B by 2030.
- These estimates likely *underestimate* the value of pDNA for mRNA production
- The demand for DNA has never been higher, both for R&D and therapeutics
- To address current and future demand, DNA manufacturing capacity must expand

LinearDNA™ – versus Plasmid DNA

LinearDNA™ versus pDNA summary:

Attribute	LinearDNA	pDNA
Risk of Antibiotic Resistance Gene Transfer	No	Yes
Endotoxin Risk	No	Yes
Cellular Purification Necessary	No	Yes
Unknown Variable Yield	No	Yes
Unwanted DNA in Final Product	No	Yes
Manufacturing Timeframe	Days	Weeks/Months
DNA Construct Optimization via Primer Modification	Yes	No
Able to Produce Long Homogenous Poly-A Tails (necessary for mRNA templates)	Yes	No
Percentage of Produced DNA Comprised of Target Therapeutic DNA Sequence	100%	≈ 40%

The LinearDNA™ Process



- The platform utilizes only:
  - DNA Template
  - DNA Primers
  - dNTPs; and
  - DNA polymerase
- Purification is straightforward, as there is no bacterial contamination
- 100% of the amplified DNA is the target sequence
- Resulting product is extremely pure
  - LinearDNA™ “crude” prep is likely cleaner than pDNA
- Manufacturing is rapid (days) and highly efficient
- Excellent batch-to-batch consistency

One Platform – 3 Applications

Wide Range of Biotherapeutic Uses Spanning the Value Chain

mRNA Manufacturing

- IVT template for mRNA
- Use of LinearDNA instead of pDNA for IVT template reduces manufacturing complexities
- LinearDNA IVT template can include 3' and 5' UTRs and template for polyadenylation (poly A)
- Provides for a completely cell-free manufacturing process for mRNA
- GLP likely acceptable with a path to cGMP
- Potential for near term revenue

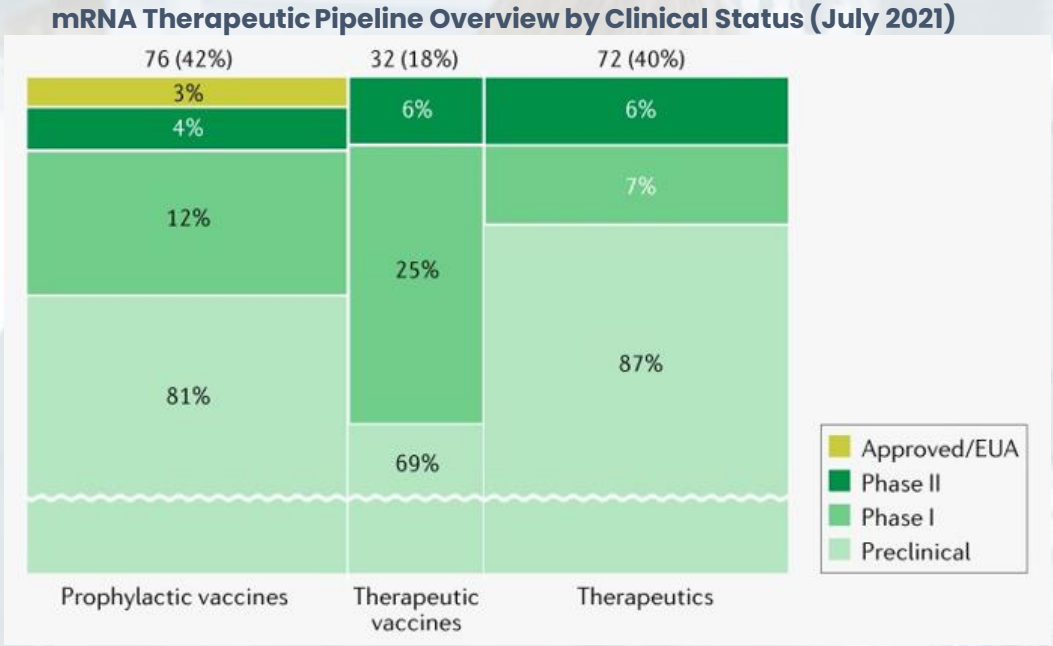
Component of Advanced Biotherapeutics

- LinearDNA is a component of a therapy, *not* the final therapy (e.g. CAR T, viral vectors, gene therapy, CRISPR)
- Several existing customers in this space that have produced strong validation data
- GLP likely acceptable with a path to cGMP
- R & D work is well defined and achievable
- Potential for near term revenue

Direct Therapeutic

- LinearDNA *is* the final therapy (e.g., DNA vaccines, immunotherapy)
- Animal validation data (feline, ferret, mouse) for LinearDNA as prophylactic vaccine and a therapeutic vaccine (anti-cancer)
- Applicable to both the human and veterinary markets
- cGMP is necessary
- LinearDNA has the potential to supplant mRNA as a therapeutic vector

Market Analysis–mRNA Therapeutics



Source: https://www.nature.com/articles/d41573-021-00147-y

- It's still early days for mRNA therapies
- Most therapies are still in the preclinical stage
- mRNA is a proven technology with a known regulatory pathway
- DNA supply constraints will only grow as mRNA clinical pipelines advance

Key Takeaways

- Even a small percentage of the pDNA market can lead to large revenue
- There is space in the U.S. CDMO market for the LinearDNA platform, *both* for DNA as a component of advanced therapies and as a direct therapeutic
- mRNA therapies are growing rapidly – which will cause the nearest term demand for LinearDNA.
- In the future, LinearDNA as a direct therapeutic could supplant mRNA


Thank you!