Nasdaq: APDN
January 2025

Empowering the Genetic Medicines Revolution

Safe Harbor Statement

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, unknown future demand for its biotherapeutics products and services, the unknown amount of revenues and profits that will result from its Linea™ IVT and or LineaDNA™ platforms, the fact that there has never been clinical trial material and/or commercial drug product produced utilizing the LineaDNA and/or Linea IVT platforms, the unknown amount of revenues and profits that will result from its TR8™ PGx testing service, the limited market acceptance for its supply chain security products and services, as well as 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 17, 2024, 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.

Applied DNA at a Glance

Located in Stony Brook, NY (SBU Campus)

30k sqft facility

R&D, PD, and QC capabilities

GMP manufacturing suite and Dx labs

Diverse Client Portfolio

Strong existing and potential customer base

Pharma, biotechs, IVD and CDMOs

Robust and diverse sales opportunities

Industry Leader in Large-Scale PCR

Pioneered PCR-based DNA production at very large scale

15 years of experience

Multi-gram production

Multiple Potential Revenue Streams

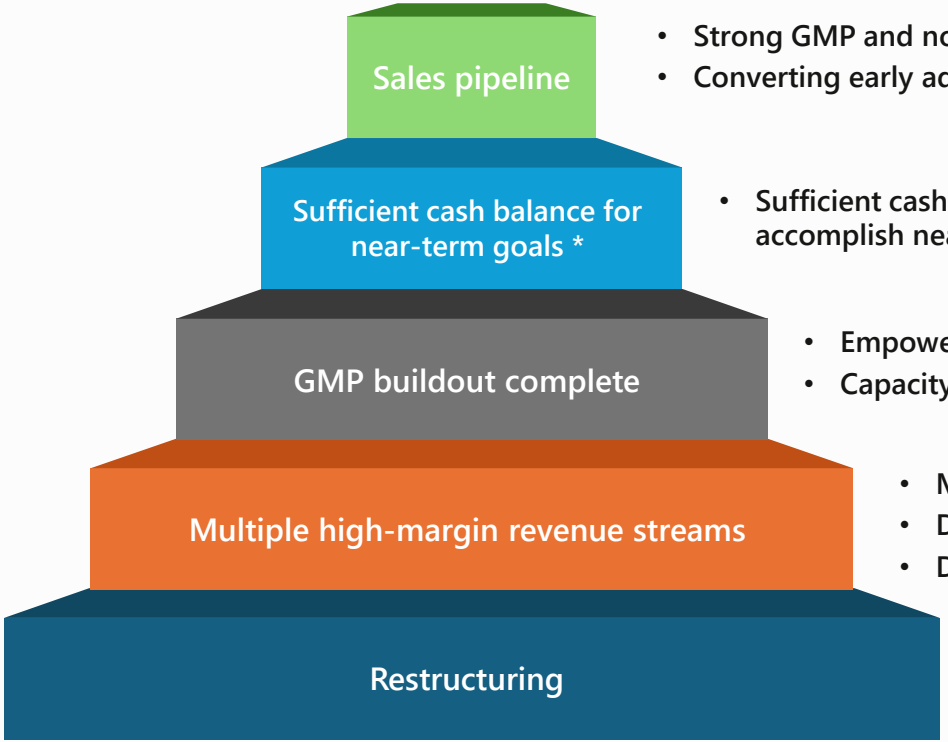
Broad relevance to most genetic medicines, as well as IVD manufacturing and Dx testing

Attractive margin profile

With our proven track record of commercializing PCR-based technologies, we have developed a novel and disruptive 100% cell-free DNA production platform to displace the use of plasmid DNA as the cornerstone of modern genetic medicines manufacture

Investment Case

Positioned for scalable growth



- Strong GMP and non-GMP DNA sales funnel
- Converting early adopters to commercial contracts

- Sufficient cash balance after completion of GMP buildout to accomplish near-term goals

- Empowers long-term GMP supply agreements
- Capacity is rapidly scalable with customer demand

- Manufacture of DNA for therapies (GMP, GLP, RUO)
- DNA for IVD manufacturing
- Dx testing

- Sharpened focus on LineaRx platforms for growth and margin expansion

*Based on internal Company modeling using current cash balance, forecasted OPEX and forecasted future revenue

A Year of Company Milestones

Validation of Linea™ IVT Platform

Linea RNAP manufacturing scaleup completed

Validation of reduced dsRNA at commercial scale

Cost equivalence to legacy platforms demonstrated

Initial GMP Site Completed

Purpose built for LineaDNA™ Platform

Production of IVT templates

Estimated 10g/year initial capacity

LineaDNA Enters the Clinic

Used as critical component of CAR-T therapy

First in human use of LineaDNA

Reduced regulatory hurdles for customer as compared to pDNA

Customer Success

Over 25 customer projects in FY24

Multiple customers entering the clinic in FY25

GMP orders for IVT templates expected in 1HFY25

PGx Approval

NYSDOH approval of 120 SNP targets relevant to a wide range of therapeutic indications

Cardiac, pain management, oncology, and others

Restructuring

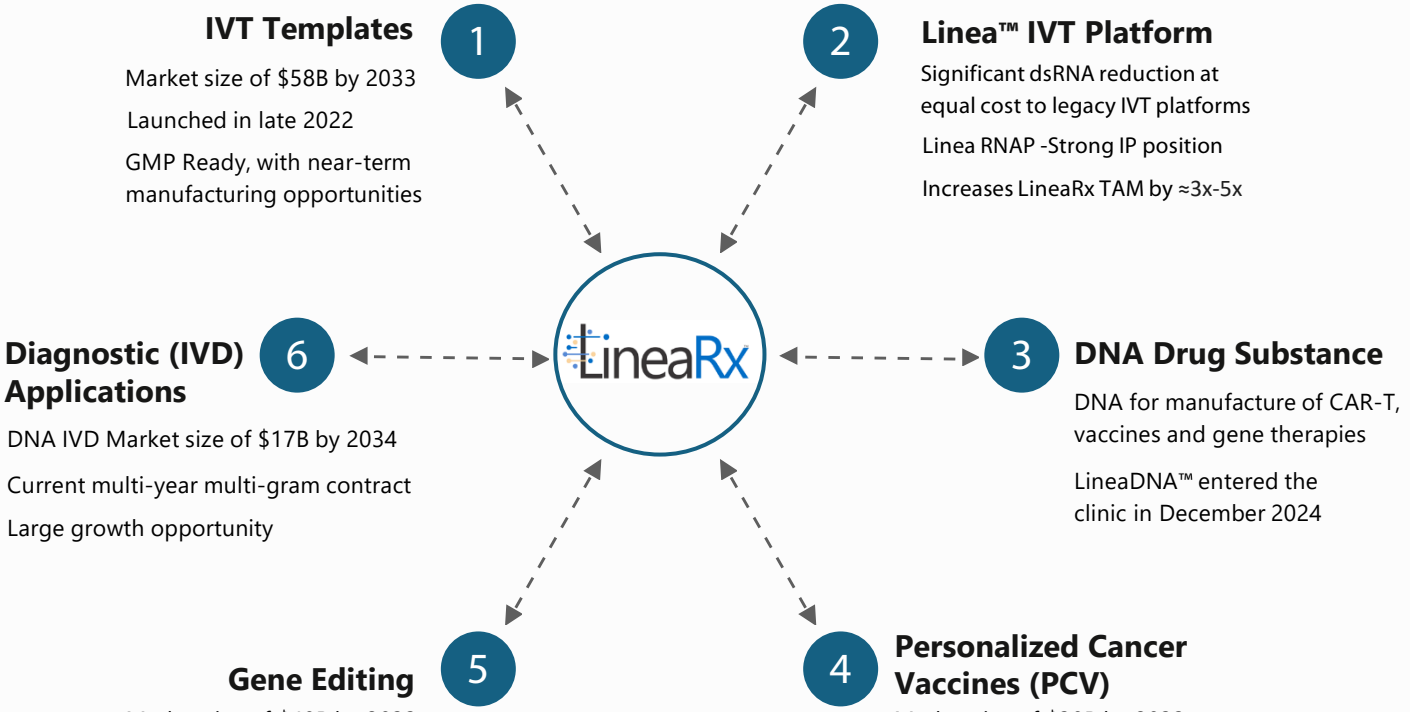
Targeting reduction in CAPEX of 15% v. FY2024

Sharpened focus on LRx

Exploring divestiture of low margin tagging segment

DNA is Critical to Modern Medicine

Multiple high-margin market opportunities

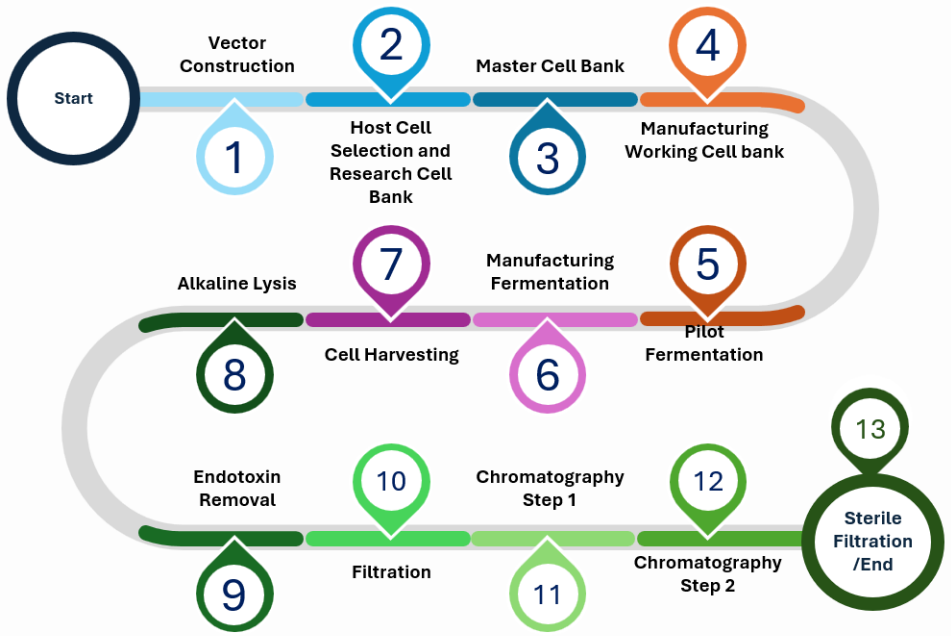


Sources: (i) https://www.biospace.com/mrna-therapeutics-market-size-set-to-soar-usd-58-90-bn-by-2033; (ii) https://www.biospace.com/genome-editing-market-size-to-reach-usd-40-48-billion-by-2033 ; (iii) https://www.globenewswire.com/news-release/2024/08/23/2934961/0/en/Cancer-Vaccines-Market-Size-Expected-to-Reach-USD-30-16-Bn-by-2033.html; (iv) https://www.biospace.com/press-releases/dna-diagnostics-market-size-to-worth-around-usd-17-billion-by-2034

Legacy DNA Manufacturing

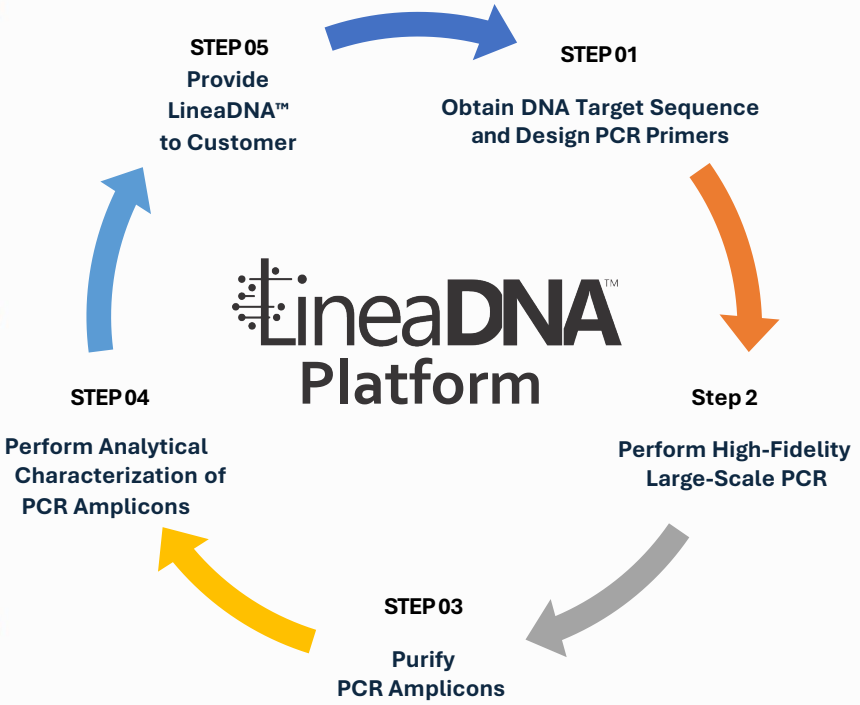
Plasmid DNA Complexity

- Large capital expenditure
- Regulatory scrutiny
- Long lead times
- Based on 40-year-old technology
- Poor batch-to-batch consistency and batch failures
- Unwanted DNA sequences including antibody resistance gene
- Complex sequences are unstable
- Increased complexities into mRNA manufacturing



LineaDNA™ Platform

DNA Made Simple

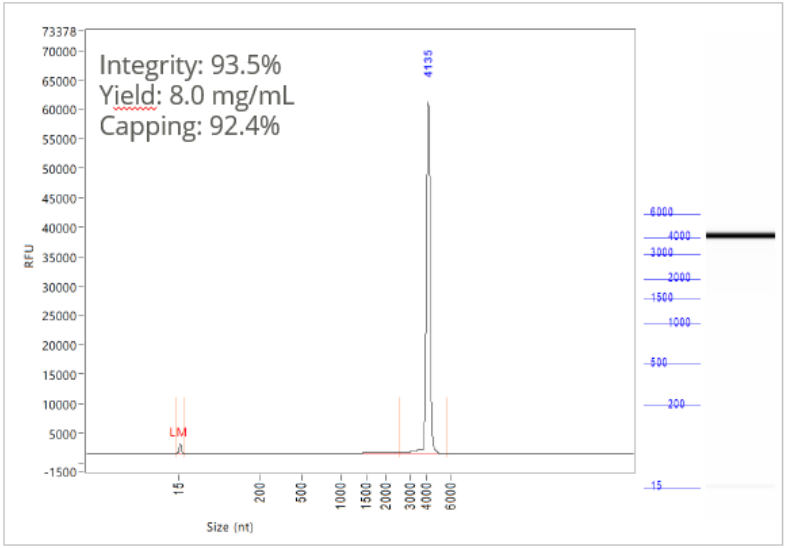


- High purity v. plasmid DNA
- Only 5 production steps
- Rapid large-scale production
- Uses enzymes and is 100% cell free
- Large yield in small footprint
- Only target DNA produced
- Simple process is well suited to cGMP

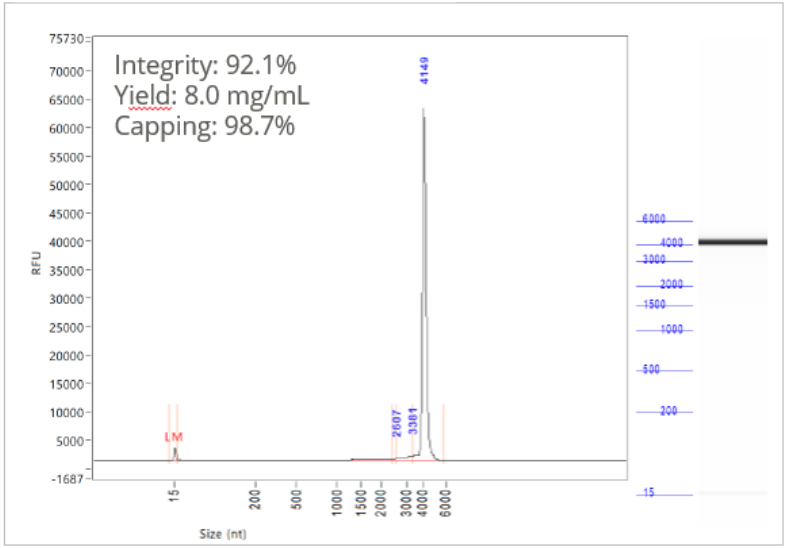
LineaDNA™ IVT Templates

Comparison to pDNA IVT Template

mRNA from *E. coli* DNA



mRNA from LineaDNA™



Fragment Analyzer chromatograms shown
mRNA COVID-19 vaccine candidate shown

Data generated in collaboration with Kudo Biotechnology, Inc.

LineaDNA™

GMP IVT Templates

- Various quality grades available
- ISO13485-based quality system
- Robust analytical testing development capabilities
- All LineaDNA™ IVT templates produced in new Stony Brook, NY GMP facility
- Separate manufacturing spaces for RUO and IVD DNA

LineaRx	Research Grade	GMP-Like	GMP
Applications	Basic research, drug discovery, preclinical studies	Preclinical studies such as animal testing of drug safety and metabolism	Preclinical studies, clinical studies, and commercialization
Production scales	250 µg to 10 mg	10 mg to gram scale	10 mg to gram scale
Turnaround	4 - 6 weeks (for new sequence)	< 80 mg in 4 to 6 weeks > 80 mg to 500 mg 6 to 12 weeks > 500 mg 12 weeks +	< 80 mg in 6 to 8 weeks > 80 mg to 500 mg 8 to 14 weeks > 500 mg 14 weeks +
Quality system	ISO9001	ISO9001/ ISO13485	ISO9001/ ISO13485 with applicable ICH Quality Guidelines
Production facility	Parallel production of orders in shared laboratory space	Production in dedicated space	Production in certified GMP suites
Document control and traceability	Yes	Yes	Yes, with additional systems and environmental controls
QC and release	Agilent Bioanalyzer Nanodrop Agarose Gel HPLC (Purity) NGS Sequencing	Agilent Bioanalyzer Nanodrop Agarose Gel HPLC (Purity) NGS Sequencing Endotoxin Sterility upon request Residual polymerase upon request	Agilent Bioanalyzer Nanodrop Agarose Gel HPLC (Purity) NGS Sequencing Endotoxin Sterility Residual polymerase upon request
Aseptic fill/finish	Available upon request	Available upon request	Yes
Storage of retention sample	Available upon request	Available upon request	Yes
Document deliverable	DNA Analysis Report	1. COA 2. TSE/BSE statement upon request	1. COA 2. TSE/BSE statement 3. Other documentation upon request

LineaIVT

One Platform - 2 mRNA manufacturing issues solved

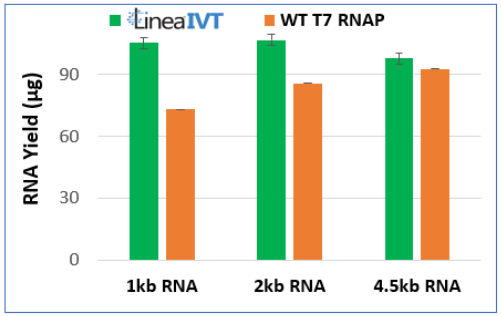
- Bacterially derived pDNA is currently the starting material for mRNA
- Long lead times increase mRNA production timeline
- Struggles with complex DNA sequences such as Poly(A) tails
- Requires expensive enzymatic linearization and additional filtration steps
- Increased regulatory scrutiny

Plasmid DNA

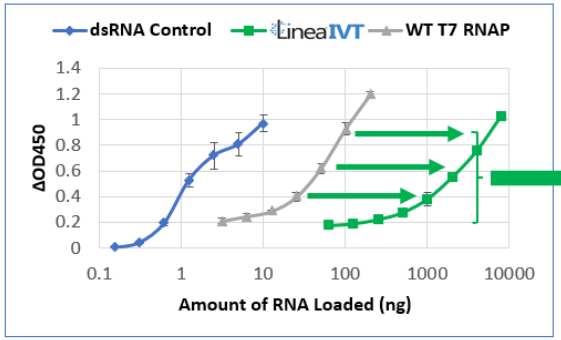
Double Stranded RNA

- Problematic inflammatory byproduct of conventional IVT
- dsRNA removal is essential for safe and effective mRNA products
- Defined by WHO as a hazardous byproduct that must be removed
- Currently mitigated via expensive and complex purification methods
- Increased regulatory scrutiny and QC issue

Equal or Greater RNA Yields with Reduced dsRNA and Off-Target Immune Response

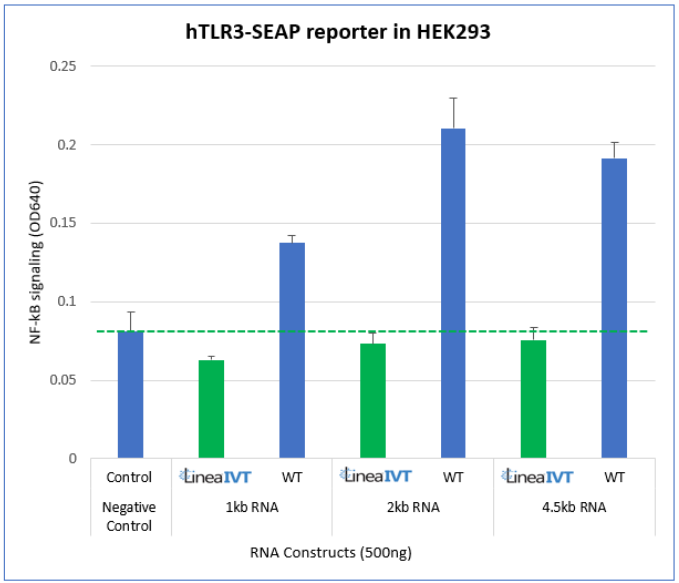


RNA Yields



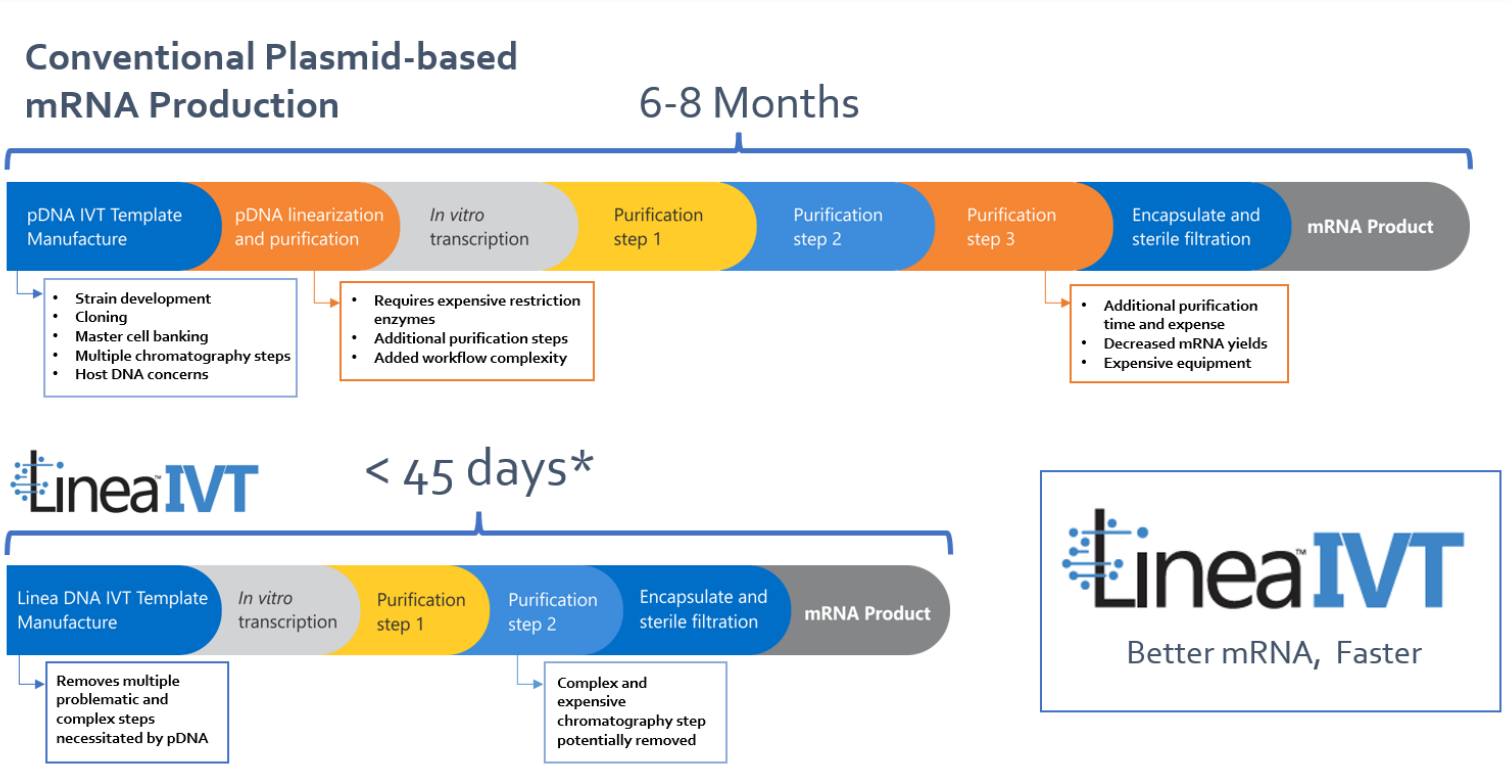
dsRNA by J2 ELISA

LineaIVT ≈50x dsRNA Reduction from WT T7



Internally generated Company data

Simplifying mRNA Production Workflows



*Based on internal company data and modeling

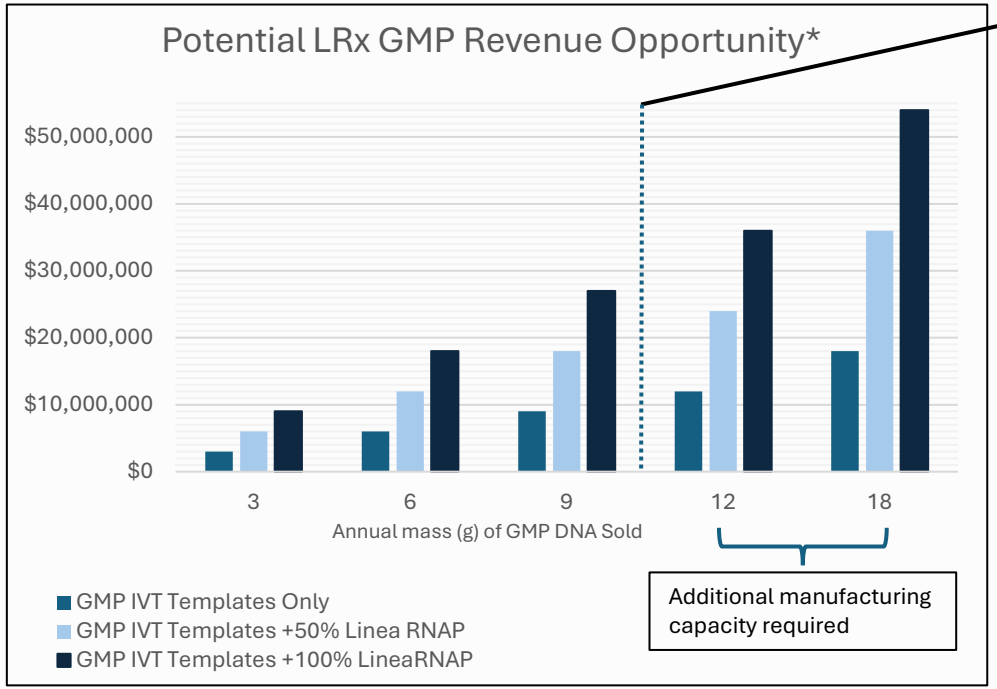
Current* LRx IVT Template Potential Sales Funnel

Customer	Product	Application	Estimated Timing of Potential GMP Run	Selling Phase
A	linDNA IVT templates	sa-mRNA	FY25Q2	Multiple evaluations complete. GMP quote issued. Negotiation of MSA.
B	linDNA IVT templates	Prophylactic mRNA vaccine	FY25Q3	Multiple evaluations complete. GMP quote Issued
C	linDNA IVT templates	sa-mRNA	FY25Q3	Second round of evaluation underway
D	linDNA IVT templates	mRNA-based CAR-T cell	FY25Q4	Multiple evaluations complete. GMP quote issued.
E	linDNA IVT templates	sa-mRNA	FY25Q4	Second round of evaluation underway
F	Linea™ IVT platform	Prophylactic mRNA vaccine	FY25Q4	Initial evaluation
G	Linea IVT platform	mRNA vaccine	FY25Q4	Initial evaluation
H	Linea IVT platform	Therapeutic mRNA vaccine	FY25Q4	Initial evaluation

*As of 1/10/25

Potential LineaRx™ IVT Template GMP Revenue

Small size, big opportunity

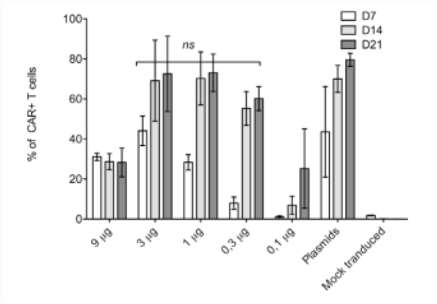


- Initial ≈10g/year projected GMP capacity out of less than 1,000 sqft clean room
- Potential expansion of current site or additional site needed to expand capacity
- Sale of Linea™ RNAP significantly increases revenue and margin versus IVT templates alone

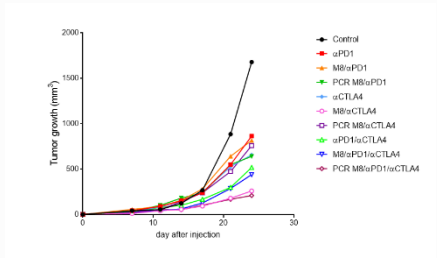
*Based on Company internal modeling using current unit pricing and market analysis. All figures are for illustrative purposes only and do not constitute financial guidance and may be subject to further change without notice. Internal modeling is based on assumptions the Company believes are reasonable but could be mistaken. Potential revenue opportunity may not be realized and is not indicative of profit.

LineaDNA™ Success Across Genetic Medicine Modalities

Oncology

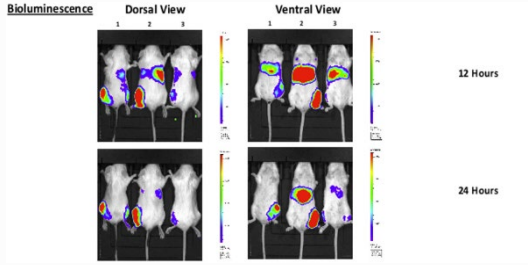


CAR-T Manufacture

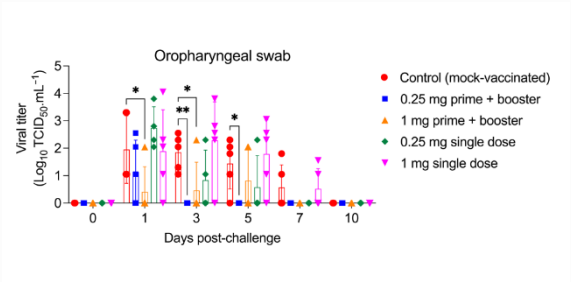


Neoantigen DNA Vaccine

DNA Vaccines

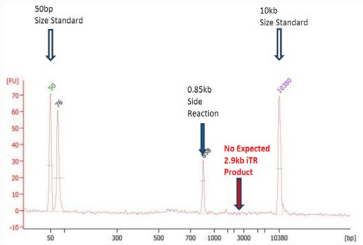


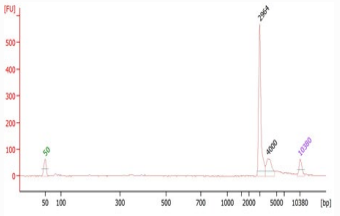
LNP/DNA IM Administration



Protective Prophylactic DNA Vaccine

Gene Therapy

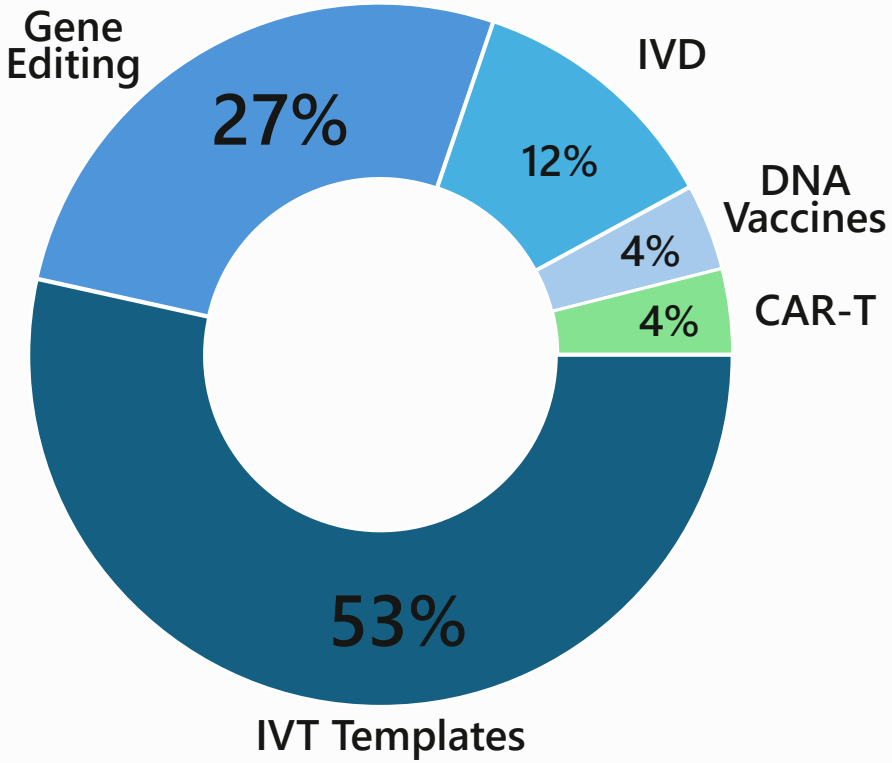




AAV ITR-Transgene Production

1- Kaštánková I, *et al.* Enzymatically produced piggyBac transposon vectors for efficient non-viral manufacturing of CD19-specific CAR T cells. Mol Ther Methods Clin Dev. 2021 Aug 26;23:119-127. doi: 10.1016/j.omtm.2021.08.006. PMID: 34631931
2 - Conforti, A., Salvatori, E., Lione, L. et al. Linear DNA amplicons as a novel cancer vaccine strategy. J Exp Clin Cancer Res 41, 195 (2022). https://doi.org/10.1186/s13046-022-02402-5
3- Mathias, M., Diel, D., Hayward, J. et al. A Linear SARS-CoV-2 DNA Vaccine Candidate Reduces Virus Shedding in Ferrets. bioRxiv 2002.09.29.510112. https://doi.org/10.1101/2022.09.29.510112
4 – Internal company data

Building a Diversified LineaRx™ Customer Base



FY2024 LineaRx Customer Orders

APPLIED DNA

Clinical Labs

an Applied DNA Sciences company

Optionality on Dx Revenue

- **NYSDOH CLEP/CLIA Certified**
  - Permitted in virology and genetic testing (molecular)
  - Approved LDTs for COVID-19, mpox, and 120 target PGx
  - Access to out of state patients in most states via NYSDOH licensure
- **TR8™ PGx Testing**
  - 120 SNP targets relevant to a wide range of medications covering diverse disease indications
  - Push towards personalized medicine is driving adoption of PGx as standard of care
  - Ability to "break up" genetic targets to create numerous smaller PGx panels for specific indications
- **Minimal OPEX**
  - FY24 OPEX less than 10% of company consolidated OPEX
  - Small team of 5 fulltime employees
- **Large Potential Upside**
  - PGx testing via self-pay provides strong margin profile
  - Ability to run over 150 tests/week with existing equipment and staff
  - Demonstrated ability to rapidly develop and gain approval for LDTs targeting emergent health crisis
- **Deep Scientific Bench**
  - Unique ability to leverage scientific expertise of LRx for complex assay development
  - Access to assets of LRx such as NGS and LineaDNA manufacturing for LDT production

The Path to Breakeven

$19-21m Annual Revenue Target to Breakeven*

Revenue Growth

- Multiple and diverse high margin opportunities available now
  - GMP IVT Templates
  - Linea™ RNAP
  - DNA for IVD applications
  - PGx Testing

Expansion of GMP Capacity

- Cleanroom design is highly expandable
  - Less than $600k/cleanroom. Rapidly deployable
  - Grow capacity in lockstep with customer demand
- Development of new DNA polymerase
- Large tranche of existing warrants near or in the money

Target New DNA Markets

- Substantial near-term opportunity in personalized cancer vaccines (PCVs)
  - Exploring strategic partnerships
- Gene editing/homology directed repair (HDR)
- Closed ended DNA expression vectors

Optimize Cost Structure

- Restructuring underway
  - Targeting 15% reduction in OPEX as compared to FY2024
  - Planned completion in current quarter
- Potential for additional cost optimization to further reduce OPEX

*Based on Company internal modeling using currently projected OPEX, product margins and current unit pricing. All figures are for illustrative purposes only and do not constitute financial guidance and may be subject to further change without notice. Internal modeling is based on assumptions the Company believes are reasonable but could be mistaken.

Financial Snapshot

Represents financial results as of September 30, 2024, except cash and equivalents on November 3, 2024; warrant and share counts as of January 8, 2025

LTM Revenue (as of 9/30)	$3.4mm
Cash and Equivalents	$10.1mm
Debt	$ 0
Common Shares Outstanding	55,188,523
Options and Warrants	133,539,159
Fully Diluted Shares Outstanding*****	188,727,682
Fiscal Year-End	Sept. 30

Summary Warrant Schedule

Warrants	Term	Exercise Price	Warrants Remaining Outstanding	Potential Remaining Gross Proceeds	Warrants Exercised, Proceeds to Date
Series A	5 yrs from 9/30/24	$0.20******	88.2M	$17.6M	3.6m, $729K
Series B	1 yr from 9/30/24	$1.99 or $0*/**	2.3M or 6.8M*/**	$0	2.3M, $0
Series C	5 yrs from shareholder approval***	$0.32	20.3M	$6.5M	n/a
Series D	18 months from shareholder approval***	$0.32****	20.3M (1-for 1 cashless)****	$0	n/a

* Pursuant to alternative cashless option exercise (3-for-1)
** Subject to reset in the event of a reverse stock split;
*** Unregistered; subject to shareholder approval at 23 Jan. Special Meeting; 1.02M placement warrants at identical exercise price also subject to shareholder approval
**** Subject to reset in the event of a reverse stock split; floor of $0.0634
***** Excludes potential resets or remaining Series B 3-for-1 cashless option exercises
******Majority of Series A are at $.20, with small tranche at $0.19

appliedDNAsciences
Nasdaq: APDN

Thank You!

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