Applied DNA Acquires Spindle Biotech

Better RNA…Faster

July 13, 2023

appliedDNAsciences

Nasdaq: APDN

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, are based on assumptions and involve a number of risks and uncertainties, many of which are beyond the control of Applied DNA, and include Applied DNA's beliefs and expectations and statements about the benefits sought to be achieved in the acquisition of Spindle and the potential effects of the acquisition on 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 the LineaIVT™ platform, the fact that there has never been a commercial drug product utilizing PCR-produced DNA technology and/or the Spindle RNAP enzyme 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 14, 2022, as amended, its 10-Q filed on February 9, 2023, and May 11, 2023, 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.

Acquisition Highlights

Structure

The acquisition of Spindle Biotech is being accounted for as an asset acquisition, and Applied DNA will record the assets acquired and the consideration paid in its fiscal fourth quarter and full-year 2023 results ending September 30, 2023.

Non-Contingent Considerations

Cash of $625,000, and 750,000 shares of restricted common stock subject to a 6-month lockup period

Contingent Stock Considerations

1.0M shares, 250,000 shares of which will be issued upon the issuance of a patent for the Spindle RNA polymerase, and 750,000 shares of which will be issued in three equal tranches upon the achievement of aggregate gross sales milestones at $5.0M per tranche

Revenue Share (10 Years)

10% of Linea™ **IVT** platform net sales
14% of enzyme net sales if sold outside of the Linea™ **IVT** platform

Management

Spindle Biotech CEO Aaron Chung joins Applied DNA as Director, Nucleic Acid Platforms

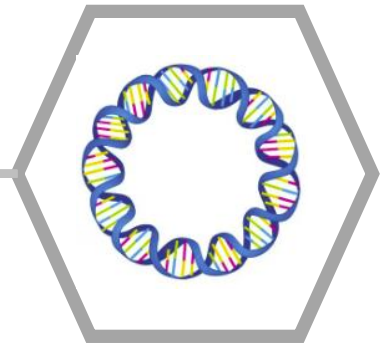
Acquisition Rationale

- Unique combination of LinearDNA™ platform and Spindle complementary technologies allow Applied DNA to address two significant issues facing mRNA manufacturing.
- The Company's LinearDNA platform is well suited to produce chemically modified IVT templates, which are required for the Spindle RNA polymerase (RNAP).
- Addition of Spindle RNAP increases the Company's total addressable market several fold to an estimated 20+%[1] of mRNA manufacturing costs of goods.
- Combined technology allows Applied DNA customers to produce better mRNA, faster and cheaper.

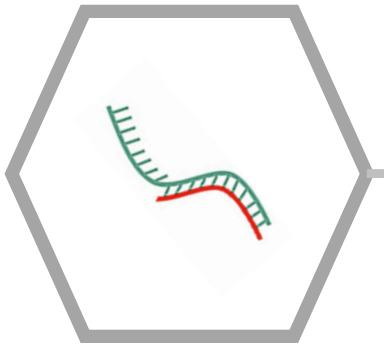
1- Based on Company's internal modeling and estimates

Conventional mRNA Manufacturing Problems

- 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 (pDNA)



Double Stranded RNA (dsRNA)

- Problematic inflammatory byproduct of conventional IVT
- dsRNA removal is essential for safe and effective mRNA products
- Currently removed via expensive and complex purification methods
- Can cause quality control issues
- Increased regulatory scrutiny

Substantially Improved mRNA Production

linearDNA™ IVT Templates

- Cell free enzymatic production platform
- Rapid production timelines
- Reduces mRNA production steps
- Primer induced modifications enable simple 3′ and 5′ IVT template customization
- Stable homopolymer amplification

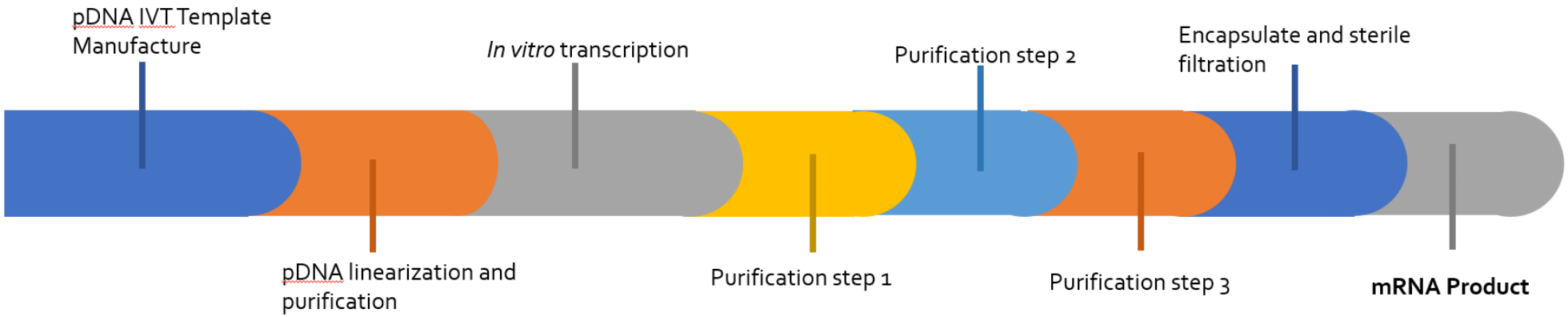
Spindle RNA Polymerase (RNAP)

- Proprietary and patent pending RNAP
- Includes DNA binding domain and high-fidelity T7
- High binding affinity for chemically modified linearDNA IVT templates
- Reduces or eliminates dsRNA contamination
- mRNA yields that meet or exceed conventional IVT

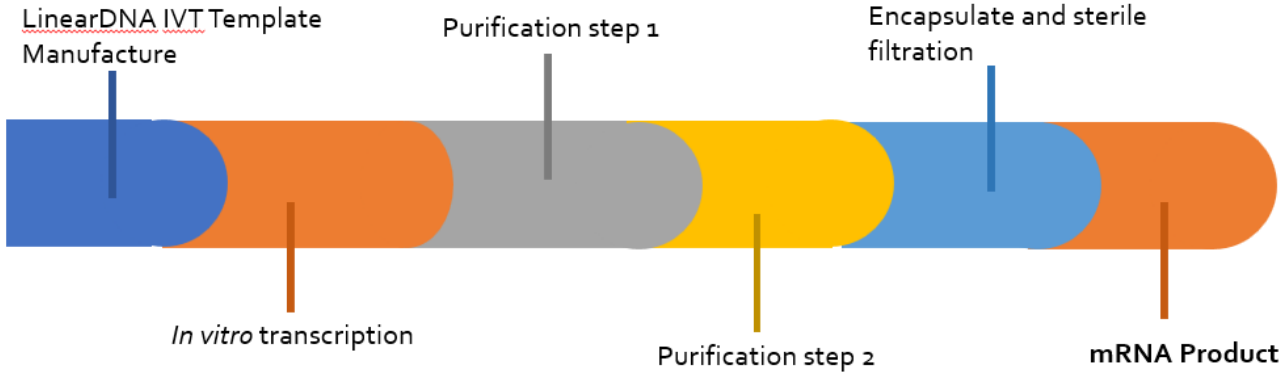
- **Significantly simplified mRNA production**
- **Reduced or eliminated dsRNA contamination**
- **Delivery of commercial scale IVT templates in as little as 14 days**
- **Integrable into current mRNA workflows**

Simplifying mRNA Production

Conventional IVT mRNA Production

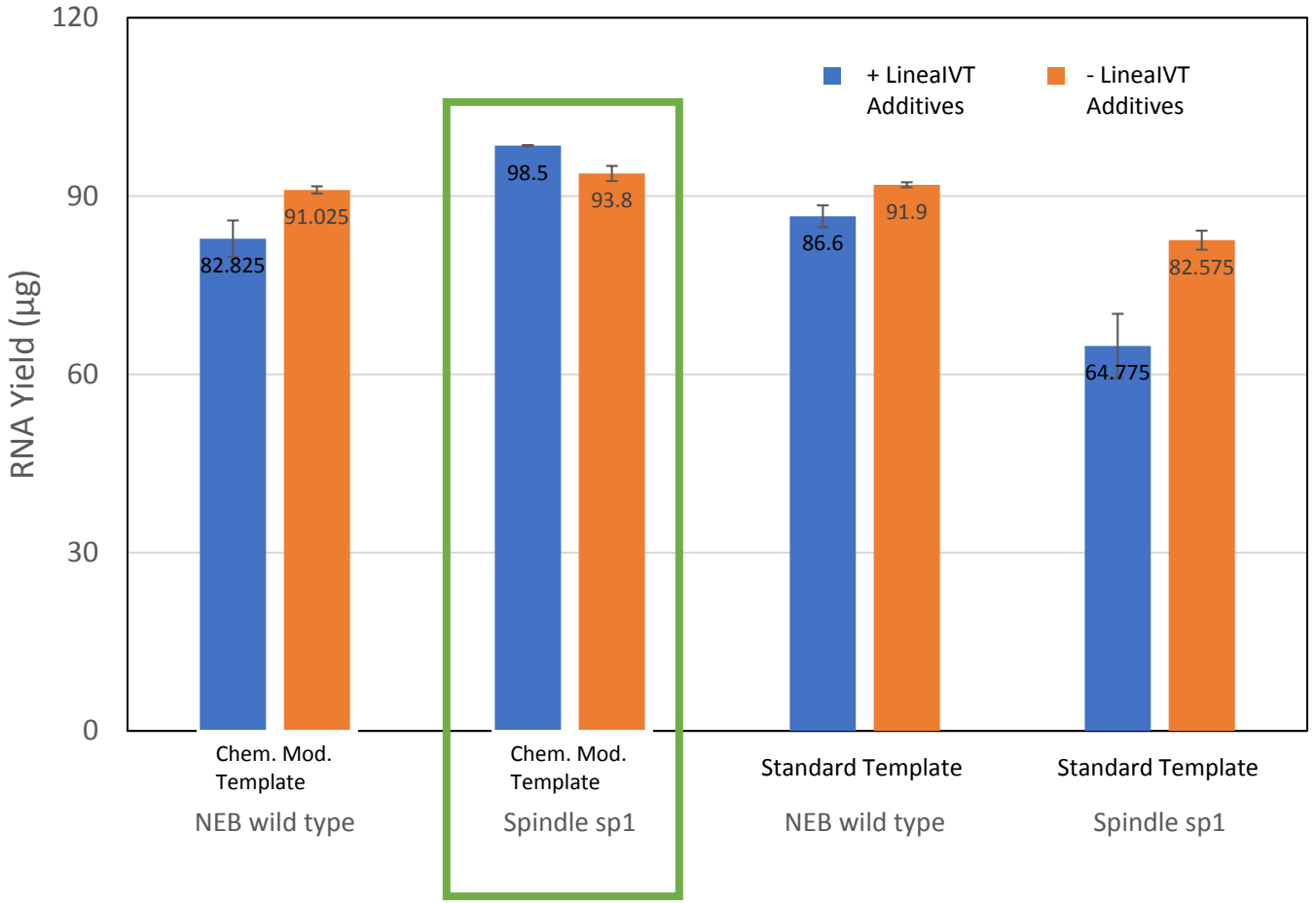


Linea IVT mRNA Production



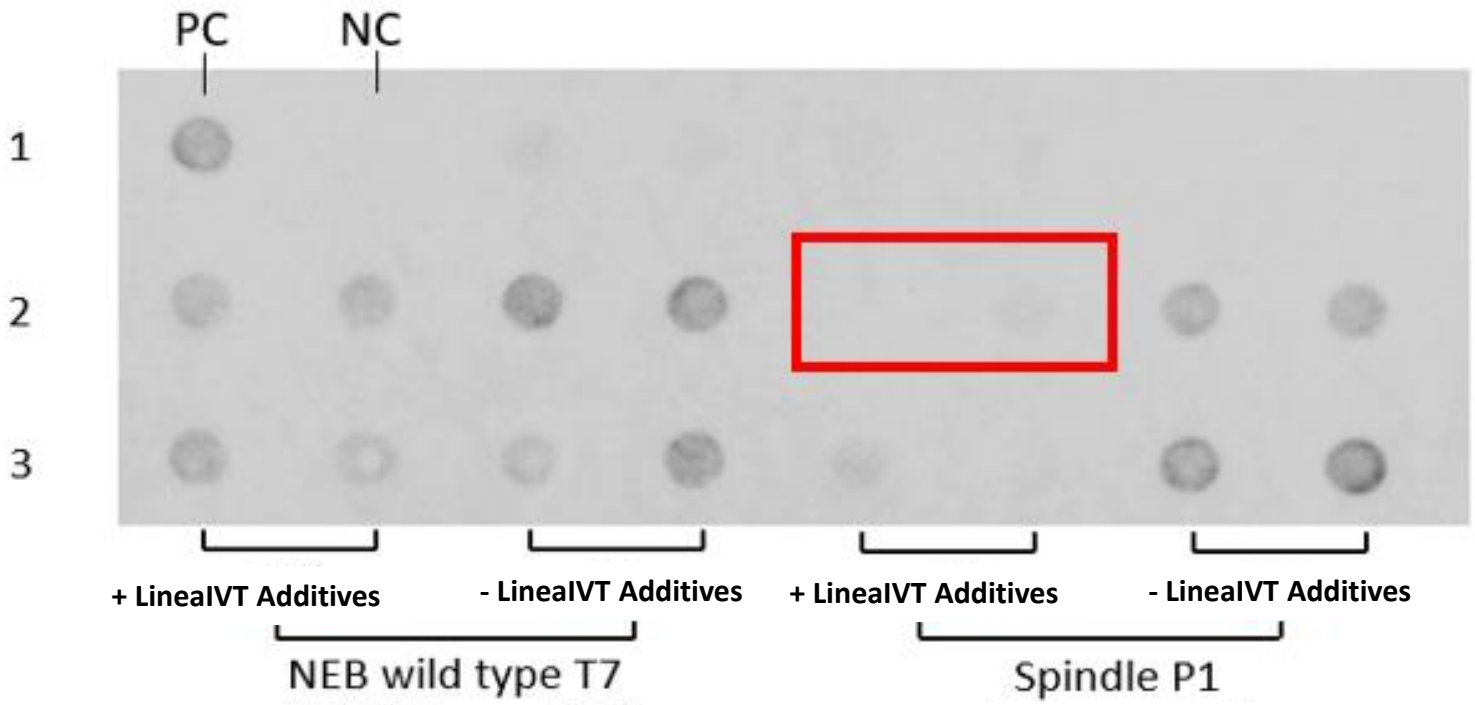
Removal of IVT template linearization and purification steps results in simplified workflow

Equivalent mRNA Yields to Conventional IVT



Platform's chemically modified linearDNA templates and proprietary enzyme and IVT conditions **have no negative impact on mRNA yields**

Elimination or Significant Reduction of dsRNA Impurities



- Dot blot detection of dsRNA impurities in mRNA. The darker the dot, the more dsRNA is present.
- Combination of chemically modified linearDNA templates +Spindle RNAP **significantly reduces or eliminates dsRNA** impurities as compared to conventional IVT

Thank you!

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LineaIVT™

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