Advantages of DNA Vaccines in Response to COVID-19

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Key Characteristics of Inovio’s DNA Vaccine Platform

- Room Temp (25°C) Storage: >1 year; 37°C > 2 months
- Refrigerated (2-8°C): Storage >5 years
- No Anti-Vector Response (effective boosting)
- Rapid & Scalable Manufacture
- Multi-antigen Immunotherapy in Single Vial
- CELLECTRA® SynCon® Robust Immune Responses (T cell and B cell)
- Non-replicating, Non-integrating Host DNA
- Plasmids

Applying Inovio’s Platform to Emerging Infectious Disease

- Speed
  - Design of vaccine candidate
  - Rapidity of manufacture

- Safety Profile
  - No anti-vector response detected in mice and non-human primates

- Duration of Response
  - Immunization provides protection in mice and non-human primates

- Efﬁcacy
  - The group is the first vaccine candidate with efﬁcacy data

- Stability of product
  - Drug product shelf life beyond 1 year at room temp

Inovio Strategy for COVID-19 Program

- Our strategy is to focus on licensure of INO-4800 by a dual strategy of emergency use authorization (EUA) and traditional approval pathway by:
  - Moving rapidly into human Phase I studies to demonstrate safety, tolerability and immunogenicity
  - Generating a preclinical data package that supports the clinical program and enables potential EUA
  - Aiming to be a leader in human proof of concept efficacy data
  - Leverage external funding to conduct rapid clinical development and accelerate PSP development and initial scale up of manufacturing
  - Expanding manufacturing capacity for supporting delivery of 100% of doses
  - Expanding our global partnerships

Inovio Response to Novel Coronavirus Outbreak (COVID-19)

- Builds Upon Prior Experience in Developing a MERS Vaccine

- To address the urgent medical need for a medical countermeasure to prevent the continued spread of COVID-19, Inovio has employed its synthetic DNA-based vaccine technology.

- Our DNA medicine technology is highly amenable to accelerated candidate discovery and developmental timelines, due to the ability to rapidly design multiple product candidate constructs, manufacture large quantities of the drug product, and the possibility to leverage previous regulatory precedents to support entry to the clinic.

- We designed our COVID-19 vaccine candidate, named INO-4800, based upon studies targeting recent major coronavirus outbreak family members. Our own extensive prior studies developing a countermeasure for MERS demonstrated that immunization of small and large animal models with synthetic DNA vaccines developed against MERS-CoV spike (S) protein provided protection against disease challenge with out evidence of ADE.
Robust Cellular and Humoral Immune Responses following Immunization of INO-4800 in Rhesus Monkeys

Detection of Neutralizing Antibodies

Demonstration of Preclinical Efficacy - SARS-CoV-2 Challenge Studies

INO-4800 US Phase 1 Progress

Grateful Thanks to our Financial Supporters and Partners to Date for COVID-19 Program