Orlance, Inc.

Delivering Rapid Response Vaccines

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Current Vaccine Production Methods

- Unacceptably long-life cycle for standard vaccine development
- Scale up and distribution has capacity and cold chain restrictions
SOLUTION: NUCLEIC ACID (NA) VACCINES W DELIVERY SYSTEMS

Alternative Methods

1-2 years

12 month availability and re-design

Scale-up, delivery

NA vaccines = ¼ of Covid-19 vaccines in clinical trials

mRNA: Pfizer/BioNTech | DNA: Inovio

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Iterative passage thru hosts

200x

Attenuate thru processing

Recombinant protein via cell culture

<6 months
NEEDLE-FREE MACH-1®: EFFICIENT, EFFECTIVE DELIVERY OF NA VACCINES

- Lowest dose
  - Cost
  - Scale up
- Most effective intracellular delivery
- Most immunogenic target cells
- No cold chain

While competitors inject into muscle ECM*, MACH-1 delivers into skin cells

*ECM=extracellular matrix

Powdered vaccine: Orlance can convert any NA vaccine to powdered formulation for MACH-1 delivery
MACH-1 MARKET OPPORTUNITY

**Addressable Entry Market (Serviceable Obtainable Market):**
20% of SAM, $2B

**Serviceable Available Market (SAM):**
10%, $10B

**Total Addressable Market (TAM):**
$46B 2019, $104B by 2027 (Fortune Business Insights, July 2020)

**Entry Market Candidates:**
- Influenza
- Coronavirus
- Seasonal or Universal + Co-Formulation Options

**Margin and Markup:**
$10 COGS + $60 price → 83% margin, 500% markup

**Regulatory Pathway:**
Combination Product with Vaccine as Lead (CBER in US)
MACH-1 BARRIERS TO COMPETITOR ENTRY

- Patent Portfolio
  - Disclosures and provisional patents
    - MACH-1 delivery platform
    - Vaccine design
  - License
    - Option with University of Washington
    - Conversion to license in 2021
- Significant Trade Secrets
  - Delivery mechanics
  - Powdered vaccine formulation
Reformulate partner vaccine for MACH-1 delivery 2021
Verify large animal safety and efficacy 2021
Submit IND 2022
Clinical Trials 2022-2023
FDA Approval 2024

Orlance will:
✓ Reformulate partner NA vaccine into powdered format for MACH-1 delivery
✓ Manage preclinical verifications
✓ Prepare regulatory documents for De Novo device component for IND and BLA submissions
✓ Partner to resource completion of IND ($5M), Phase 2a ($25M), Phase 2/3 and FDA Approval ($50M)
  ✓ Leverages $9.6M in Orlance NIH funding for capital-efficient partnering investment
✓ Government participation as 3rd partner very feasible (GMP production, clinical trial support)
OUR TEAM

Kris Aalto
CEO, 25 years of bioengineering, innovation development & launch, RA/CA, VC and executive experience.

Deb Fuller
PhD, CTO, co-inventor of MACH-1 technology.

Jim Mullins
PhD, co-founder and SAB member, UW, vaccine design.

Ken Bagley
PhD, Dir. R&D, 15 years in NA vaccine field, adjuvant expertise.

Hannah Frizzell
PhD, Bioengineer, Immunology and nano delivery system experience.

Lyuda Lebedinks
Financial and Administrative Manager, research operations.

Currently building business and scientific advisory boards.

Orlance, Inc.
Series A or government funding for Phase 1/2a Orlance MACH-1 influenza or CoV vaccine

DNA and mRNA vaccine Phase 1 candidates

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