INOVIO
POWERING DNA MEDICINES™

# Corporate Presentation

November 2022

Nasdaq:INO

# Forward-Looking Statements

This presentation includes statements that are, or may be deemed, “forward-looking statements,”” within the meaning of Section 27A of the Securities Act of 1933, as amended. All statements, other than statements of historical facts, included in this presentation regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans and objectives of management are forward-looking statements. In some cases, you can identify forward-looking statements by terms such as “may,” “might,” “will,” “objective,” “intend,” “should,” “could,” “can,” “would,” “expect,” “believe,” “anticipate,” “project,” “target,” “design,” “estimate,” “predict,” “opportunity,” “proposition,” “strategy,” “potential,” “plan” or the negative of these terms and similar expressions intended to identify forward-looking statements.

You should not place undue reliance on these forward-looking statements. Forward-looking statements include, but are not limited to, statements about: the timing and success of preclinical studies and clinical trials; the ability to obtain and maintain regulatory approval of our product candidates; the scope, progress, expansion and costs of developing and commercializing our product candidates; our expectations regarding the amount and timing of our expenses and revenue; the sufficiency of our cash resources, plans for the use of our cash resources and needs for additional financing; our ability to adequately manufacture our product candidates; our ability to obtain and maintain intellectual property protection for our product candidates; our expectations regarding competition; the size and growth of the potential markets for our product candidates and the ability to serve those markets; the rate and degree of market acceptance of any of our product candidates; our anticipated growth strategies; the anticipated trends and challenges in our business and the market in which we operate; our ability to establish and maintain development partnerships; our ability to attract or retain key personnel; our expectations regarding federal, state and foreign regulatory requirements; regulatory developments in the United States and foreign countries and other factors that are described in the “Risk Factors” and “Management's Discussion and Analysis of Financial Condition and Results of Operations” sections of our Annual Report on Form 10-K for the year ended December 31, 2021 and our Form 10-Q for the quarter ended September 30, 2022, which has been filed with the Securities and Exchange Commission (SEC) and are available on the SEC's website at www.sec.gov.

In addition, the forward-looking statements included in this presentation represent INOVIO's views as of the date hereof. INOVIO anticipates that subsequent events and developments may cause its views to change. However, while INOVIO may elect to update these forward-looking statements at some point in the future, the company specifically disclaims any obligation to do so, except as may be required by law. These forward-looking statements should not be relied upon as representing INOVIO's views as of any date subsequent to the date of this presentation.

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# INOVIO is a DNA Medicines Company

- Ended third quarter 2022 with $281.9M in cash and short-term investments
  - Expected to fund company's operations into 1Q25
  - Support strategic developmental plans for early-stage and late-stage pipeline candidates
- Versatile technology platform with strong patent position
- Diversified pipeline of product candidates targeting important diseases with high unmet medical needs
- Experienced management team

# Delivering on our Mission to Bring DNA Medicines to Market

**2022 Achievements to Date**

- Strengthened executive team and R&D organization with new leadership
- Announced positive Phase 1/2 interim data for INO-3107 for Recurrent Respiratory Papillomatosis (RRP)
- Presented encouraging Phase 1/2 data on INO-5401 + INO-9112 in combination with Libtayo® in glioblastoma (GBM) at ASCO Annual Meeting 2022
- Amended trial design of REVEAL2 to revise the primary analysis population from all-comers to biomarker-positive population
    - Phase 3 data readout (non-registration study) for VGX-3100 in cervical HSIL patients on track for 4Q22/1Q23

# Key Features of our DNA Medicines Platform

**Optimized DNA plasmids** delivered through investigational **proprietary smart device**

**Balanced antibody and T cell responses** to a wide range of antigen targets

Demonstrated the ability to drive **CD8⁺ T cell responses** against multiple indications

**Targets multiple antigenic sequences;** combining multiple antigens into single vial


**Well-tolerated** in more than 15,000 administrations (~5k participants)

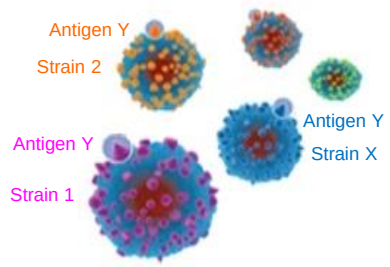
**No anti-vector response;** ability to readminister and boost

**No frozen storage issues** (room temp storage ≥6 mo.)

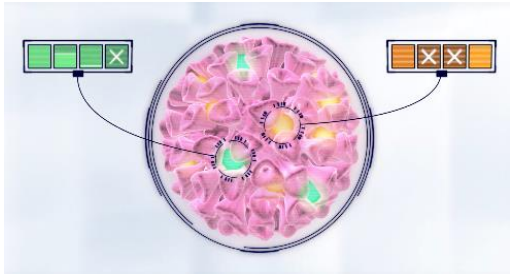
Allows **rapid plasmid construct design** and manufacture

# DNA Medicines Technology – Powering Antigen Specific Immune Responses

1. Identify diverse strains/variants of a target pathogen or cancer




2. Assess gene sequence of selected antigen(s) from chosen strains/variants of the pathogen or cancer



3. Create optimal Consensus Sequence for the selected antigen

| | |
|---|---|
| Sequence 1 | EMEKIVLLFAIV…SL |
| Sequence 2 | AMESIVLLFAIV…SL |
| Sequence X Consensus | AMEKIVILLFAIV…SK |
| | AMEKIVILLFAIV…SL |

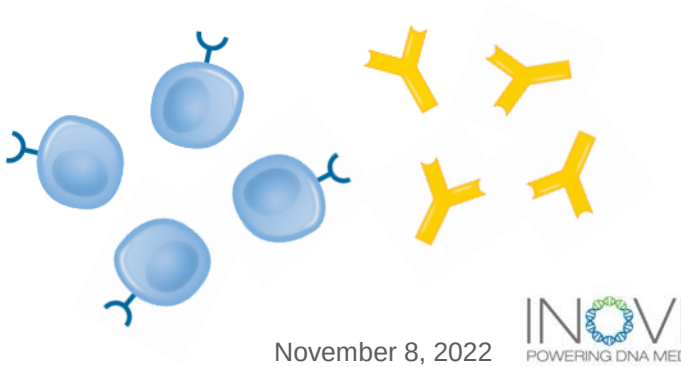
4. Insert optimized sequence for each selected antigen to construct precisely designed plasmid


5. Manufacture DNA medicine and deliver into muscle (IM) or skin (ID) using proprietary smart device

Intramuscular (IM) Device
for Pre-Cancers & Cancers

Intradermal (ID) Device
for Vaccines

6. Protective antibody and killer T cells ($CD8^+$) produced by immune system







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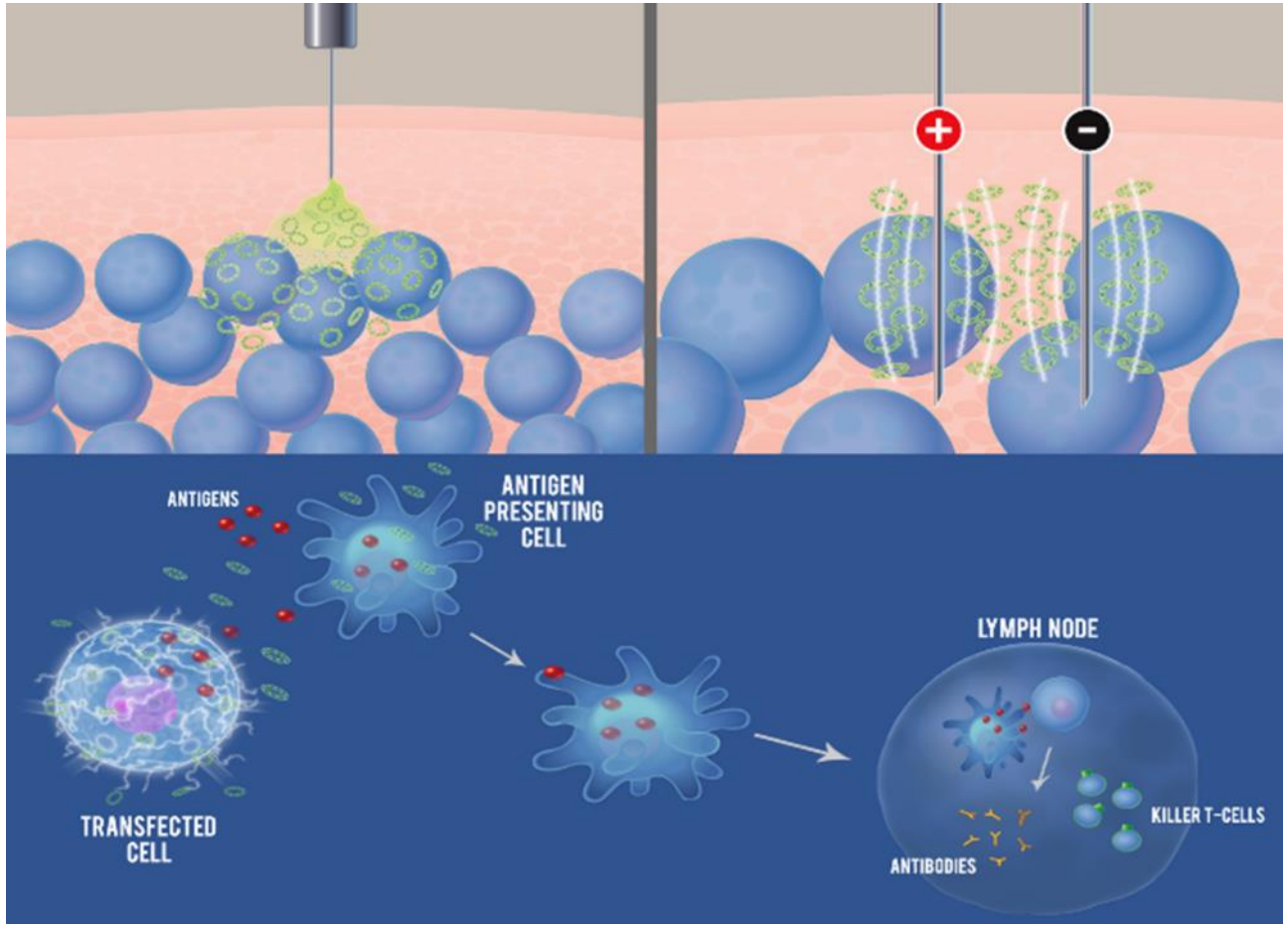
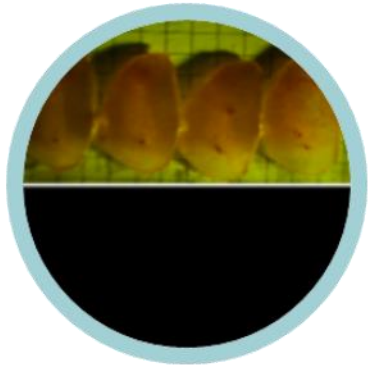
# Delivery with CELLECTRA® Results in Improved Immune Responses




**No CELLECTRA®**

Rabbit Muscle +GFP

GFP



**With CELLECTRA®**

Rabbit Muscle +GFP

GFP

Sardesai NY, et al. *Curr Opin Immunol.* 2011;23(3):421–429.
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"GFP" – Green Fluorescent Protein

# INOVIO DNA Medicines Pipeline

| | PRODUCT | INDICATION | PRECLINICAL | PHASE 1 | PHASE 2 | PHASE 3 | PARTNER/COLLABORATOR/ FUNDER |
|---|---|---|---|---|---|---|---|
| HPV-TARGETED | VGX-3100 | Cervical Dysplasia (HSIL) | | | | | Apollobio (China; INOVIO maintains global rights) |
| | | Vulvar Dysplasia (HSIL) | | | | | |
| | | Anal Dysplasia (HSIL) | | | | | |
| | INO-3107 | Recurrent Respiratory Papillomatosis (RRP) | | | | | |
| INFECTIOUS DISEASES | INO-4800 | COVID-19 (Solidarity) | | | | | World Health Organization |
| | INO-4700 | MERS | | | | | CEPI |
| | INO-4500 | Lassa Fever | | | | | CEPI |
| | INO-4201 | Ebola (Booster) | | | | | DARPA, Université de Genève, GuardRX |
| IMMUNO-ONCOLOGY | INO-5401 | Glioblastoma (GBM) | | | | | REGENERON |
| dMAb™ | | COVID-19 | | | | | AstraZeneca, DARPA, The Wistar Institute |
| | INO-A002 | Zika | | | | | Bill & Melinda Gates Foundation |

INTERNALLY FUNDED EXTERNALLY FUNDED



November 8, 2022

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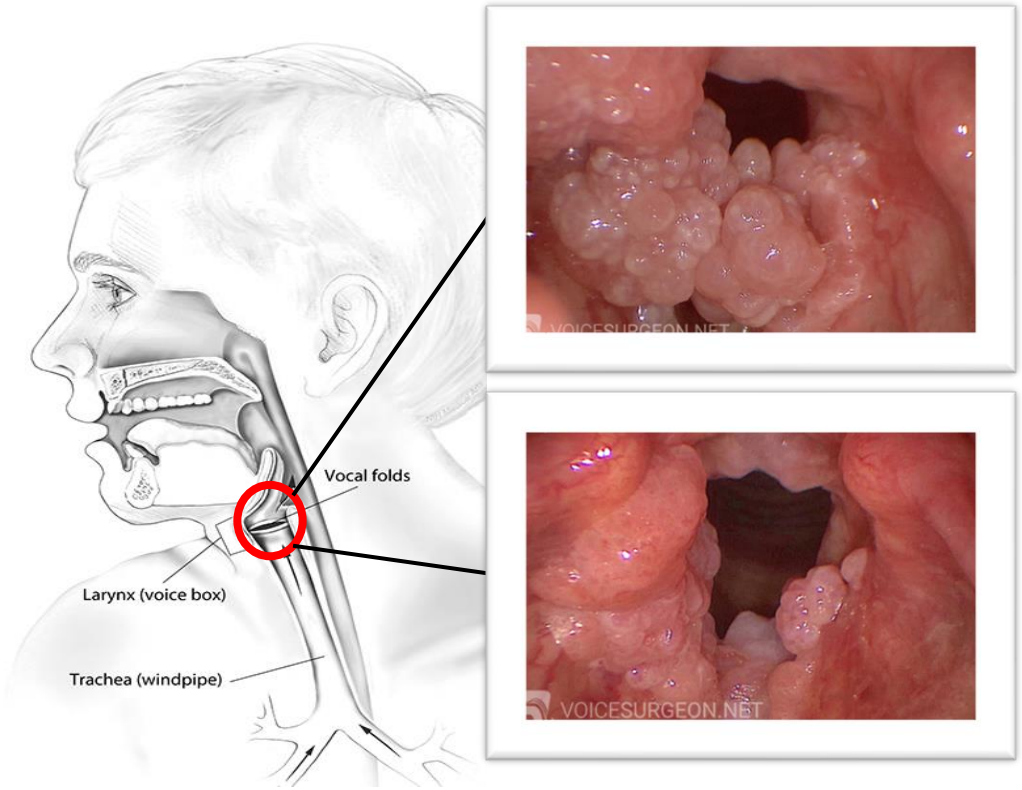
# What is Recurrent Respiratory Papillomatosis (RRP)?

- RRP is a rare disease caused by HPV types 6 and 11, impacting both children and adults
- Symptoms result from benign tumors – papillomas – in throat and on voice box
  - Can obstruct airway and cause difficulty speaking
  - Can lead to chronic cough, infections, pneumonia, hoarseness and failure to thrive
  - Rare risk of progression to lung disease and cancer
- Surgery is current standard of care
  - Patients can require hundreds of surgeries during their lifetime
  - In severe cases with aggressive tumor growth, tracheostomies may be needed to help with breathing
- Incidence (US): Children - 4.3 per 100,000 (2,354); Adults - 1.8 per 100,000 (3,623)
- Active Cases (US): Children – 5,970 active cases; Adults – 9,015 active cases

# Potential Benefits of Therapeutic DNA Medicine in Treating HPV 6 and HPV 11-Associated RRP




- INO-3107 represents a potential first-in-class non-surgical therapeutic option for HPV 6 and HPV 11-associated RRP
- Potential benefits could include:
  - Reduced number of surgical interventions needed to control regrowth of papillomas
  - Clearance of underlying HPV infection
  - Increased quality of life by eliminating and/or controlling symptoms
  - Reduced risk associated with repeat surgical interventions
- INO-3107 granted Orphan Drug Designation in July 2020

Image Source: National Institute on Deafness and Other Communication Disorders; Available at www.nidcd.nih.gov/health/recurrent-respiratory-papillomatosis; accessed July 27, 2022;

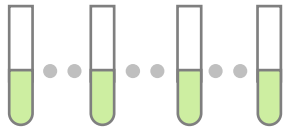
Photographs courtesy Aaron Friedman MD, University of Cincinnati College of Medicine (https://voicesurgeon.net/voice-disorders/recurrent-respiratory-papillomatosis-rrp/). Used with permission.

# INO-3107: Results of Phase 1/2 Trial for RRP

## TRIAL Design

Phase 1/2 open-label, multi-center clinical trial


Fully enrolled



4 doses of vaccine, 3 weeks apart on Day 0, Weeks 3, 6, 9

- **Enrollment criteria:** Participants who have required at least two surgical interventions per year for the past year for the removal of HPV-6/11-associated papilloma(s)
- **Efficacy endpoint:** Change in median number of surgical interventions in year prior to Day 0 when compared with year following Day 0

## Study Results from First Cohort

- Demonstrated statistical significance based on clinical endpoint of reduction in overall number of surgical interventions compared with previous year
- 16 of 21 (76%) participants saw a reduction in the number of surgical interventions compared to previous year, of which 6 participants required no surgical intervention during the trial
- Median decrease of 3 surgical interventions (95% CI 1, 3)
- Cellular response observed:
  - INO-3107 induced cellular responses against both HPV 6 and HPV 11, inducing both CD4 and CD8 T cells
  - T-cell activity against HPV 6 and HPV 11 was present at study end (43 weeks after treatment completion), indicating persistent cellular memory response
- INO-3107 was observed to be well-tolerated

# VGX-3100: Product Candidate for HPV16/18 Cervical HSIL

- First DNA medicine candidate to show regression of lesion and viral clearance against HPV16/18-associated cervical HSIL in a Phase 2B trial
  - Data published in *The Lancet* in 2015

- Current Status: Phase 3
  - REVEAL1:
    - Data announced in 2021
    - Study led to the identification of a potential pre-treatment biomarker
  - REVEAL2:
    - Ongoing study; efficacy and safety data expected 4Q22/1Q23
    - Trial design amended to revise primary analysis population from all-comers to a biomarker-positive population

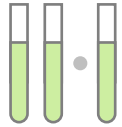
# VGX-3100: Current Phase 3 Trial for Cervical HSIL (REVEAL2)

## TRIAL Design

Phase 3, randomized (2:1), double-blind, placebo-controlled clinical trial

x198

Fully enrolled



Dosing: month 0, 1, 3

**Primary endpoint:**
Regression of HSIL (CIN2/3) and virologic clearance of HPV 16/18 in the cervix in biomarker-selected population

## Key Updates & Catalysts

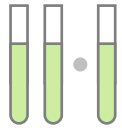
- In 2022, FDA recommended using REVEAL2 as an exploratory study to evaluate the biomarker-positive population and then conduct 1 or 2 additional well-controlled trials in the biomarker-positive population to support marketing application.
- Efficacy and safety follow up data expected 4Q22/1Q23
- Path forward for the VGX-3100 program will be assessed following the analysis of REVEAL2

# VGX-3100: Results of Phase 3 Trial for Cervical HSIL (REVEAL1)

## TRIAL Design

Phase 3, randomized (2:1), double-blind, placebo-controlled clinical trial


Fully enrolled



Dosing: month 0, 1, 3

**Primary endpoint:**
Histopathological regression of HSIL and virologic clearance of HPV16 and/or HPV18 at week 36.

**Secondary endpoints:**
a) Regression of cervical HSIL to normal tissue combined with HPV-16/18 viral clearance, b) regression of cervical HSIL alone, c) regression of cervical HSIL to normal tissue, and d) HPV-16/18 viral clearance alone

## Study Results

- ITT population (N=201): primary endpoint was not achieved
  - 22.5% (31/138) in treatment arm vs 11.1% (7/63) in placebo
  - 3 of 4 secondary endpoints achieved (did not achieve "regression of cervical HSIL alone")
- mITT population (N=193): primary and secondary endpoints were achieved
  - 23.7% (31/131) in treatment arm vs. 11.3% (7/62) in placebo
- Safety follow-up:
  - Participants who met primary endpoint at Week 36 remained clear of HPV16 and/or HPV18 at Week 88
  - Safety profile observed at Week 36 remained well-tolerated through Week 88

# INO-5401 + INO-9012 and Libtayo® for Newly Diagnosed GBM

- INO-5401 is a DNA medicine composed of plasmids that encode for three tumor-associated antigens: human telomerase (hTERT), Wilms tumor-1 (WT-1), and prostate-specific membrane antigen (PSMA)
- INO-9012 is a DNA plasmid that encodes for human IL-12
- Libtayo® is a high-affinity, highly potent, human, hinge-stabilized IgG4 monoclonal antibody to the PD-1 receptor
- In a Phase 1/2 trial, INO-5401 and INO-9012 are combined with Libtayo®, in order to create an antigen-specific, activated T cell population

| | | |
|---|---|---|
| Median OS; unmethylated (A) | 17.9 mo. (14.5 – 19.8) | *Historical 14.6-16 mo.* |
| Median OS; methylated (B) | 32.5 (18.4 – NR) | *Historical 23.2-25 mo.* |
| Median OS; combined (A+B) | 19.5 (16.9 – 23.3) | - |

- **INO-5401+INO-9012 with Libtayo® and 40 Gy radiation/TMZ were observed to have favorable tolerability and immunogenicity**

NR: not reached.
Gilbert et al. J Clin Oncol 2013; Gilbert et al. N Eng J Med 2014. Comparison is limited due to differences in trial population.
Data was presented at 2022 ASCO Annual Meeting.

# Infectious Diseases Vaccine Candidates

**INO-4800 for COVID-19 – WHO-Sponsored Solidarity Trial Vaccines**

- International, multi-center Phase 3 trial
- INO-4800 selected by the WHO's independent vaccine prioritization advisory group

**INO-4500 for Lassa Fever**

- Phase 1b clinical trial conducted in Ghana
- Completed enrollment of 220 participants
- Funded by CEPI

**INO-4700 for MERS**

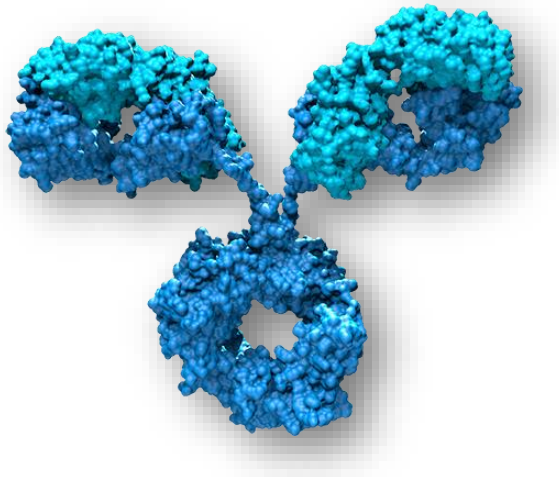
- Phase 2 clinical trial in approximately 500 participants
- Completed enrollment for dose-finding stage (192 participants)
- Conducted at sites in Jordan, Lebanon, and Kenya
- Funded by CEPI

**INO-4201 for Ebola**

- Phase 1b clinical trial
- Completed enrollment of 46 participants
- Evaluating INO-4201 as a booster in participants previously vaccinated with Ervebo®
- Funded by DARPA

# DNA Encoded Monoclonal Antibody (dMAb™)

- INOVIO is developing a novel DNA-encoded monoclonal antibody (dMAb) technology
- The dMAb technology facilitates direct *in vivo* transfection to target tissue to produce and secrete mAbs into the blood at biologically relevant levels
- dMAbs may be a potentially transformative approach for the prevention and treatment of infectious diseases and cancer
- **Wistar Institute-led Phase 1 clinical trial in collaboration with AstraZeneca, the University of Pennsylvania, Indiana University, and INOVIO to develop anti-SARS-CoV-2-specific dMAbs is ongoing**



# Upcoming Milestones

**VGX-3100: HPV-Associated Cervical HSIL**

- 4Q22/1Q23: Report REVEAL2 efficacy data and safety follow-up through week 40

**INO-3107: RRP**

- 1H23: Report data from second cohort of Phase 1/2 trial

**Infectious Disease Vaccine Candidates**

- 2H22: Report INO-4500 Lassa Phase 1b data
- 2H22: Report INO-4700 MERS Phase 2 data
- 2H22: Report INO-4201 Ebola Phase 1b booster data