



NASDAQ: ALT

**AdCOVID™**

**SINGLE-DOSE INTRANASAL  
VACCINE FOR COVID-19**

**World Vaccine Congress**

**May 4, 2021**

# FORWARD-LOOKING STATEMENTS

## Safe-Harbor Statement

This presentation has been prepared by Altimune, Inc. ("we," "us," "our," "Altimune" or the "Company") and includes certain "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding the timing of clinical development and funding milestones for our clinical assets as well as statements relating to future financial or business performance, conditions, plans, prospects, trends, or strategies and other financial and business matters, and the prospects for commercializing or selling any product or drug candidates. In addition, when or if used in this presentation, the words "may," "could," "should," "anticipate," "believe," "estimate," "expect," "intend," "plan," "predict" and similar expressions and their variants, as they relate to the Company may identify forward-looking statements. The Company cautions that these forward-looking statements are subject to numerous assumptions, risks, and uncertainties, which change over time. Important factors that may cause actual results to differ materially from the results discussed in the forward looking statements or historical experience include risks and uncertainties, including risks relating to: potential impacts due to the COVID-19 pandemic such as delays in regulatory review, manufacturing and supply chain interruptions, adverse effects on healthcare systems and disruption of the global economy, the reliability of the results of the studies relating to human safety and possible adverse effects resulting from the administration of the Company's product candidates; our lack of financial resources and access to capital; clinical trials and the commercialization of proposed product candidates (such as marketing, regulatory, product liability, supply, competition, dependence on third parties and other risks); the regulatory approval process; dependence on intellectual property; the Company's BARDA contract and other government programs, reimbursement and regulation. Further information on the factors and risks that could affect the Company's business, financial conditions and results of operations are contained in the Company's filings with the U.S. Securities and Exchange Commission, including under the heading "Risk Factors" in the Company's annual reports on Form 10-K and quarterly reports on Form 10-Q filed with the SEC, which are available at [www.sec.gov](http://www.sec.gov). The statements made herein speak only as of the date stated herein, and any forward-looking statements contained herein are based on assumptions that the Company believes to be reasonable as of this date. The Company undertakes no obligation to update these statements as result of new information or future events.

# COMPANY HIGHLIGHTS

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Proprietary **intranasal vaccine platform** ideally suited for rapid response to COVID-19 and other pandemic situations

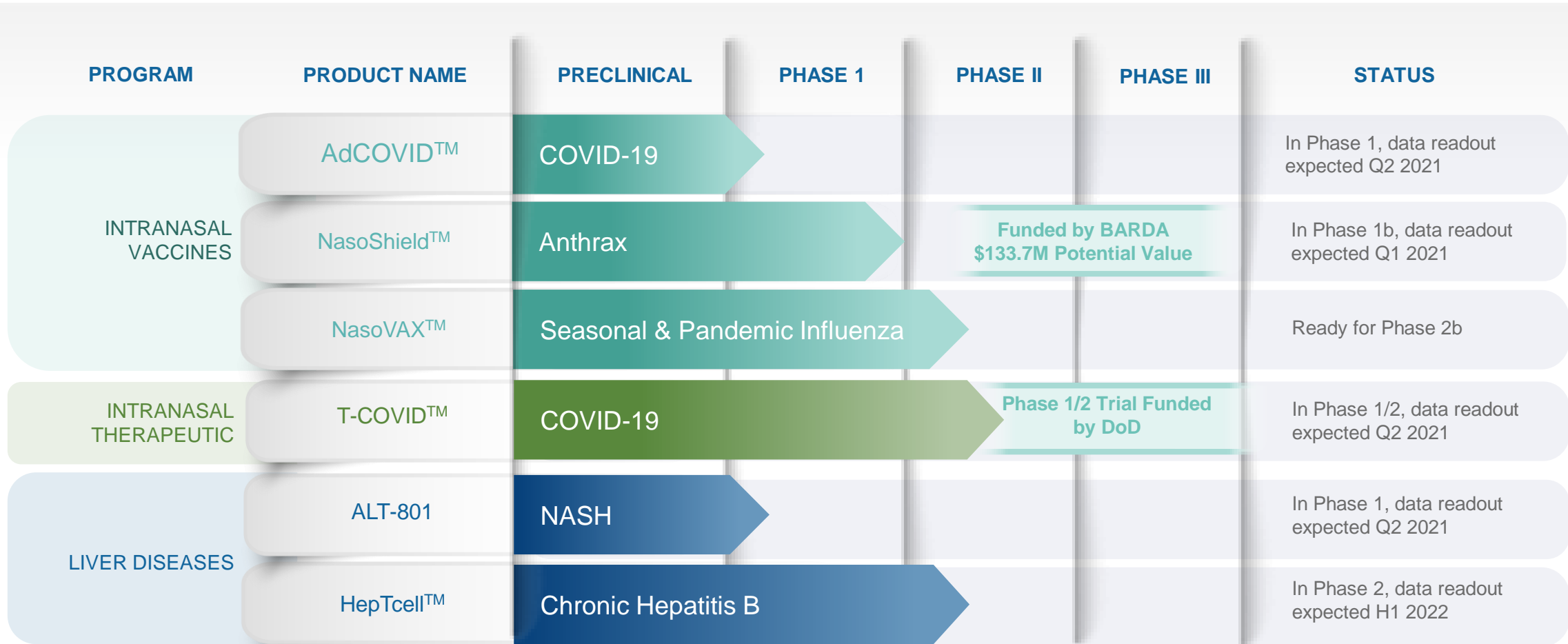


Developing **next generation peptide therapeutics** for liver disease



Near-term **value-driving catalysts with sufficient cash and investments on hand**

# ADVANCING STRONG DEVELOPMENT PIPELINE



# ALTIMMUNE IS WELL POSITIONED TO ADVANCE MULTIPLE PRODUCT CANDIDATES

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**~\$216M CASH &  
INVESTMENTS**  
(Dec 31, 2020)

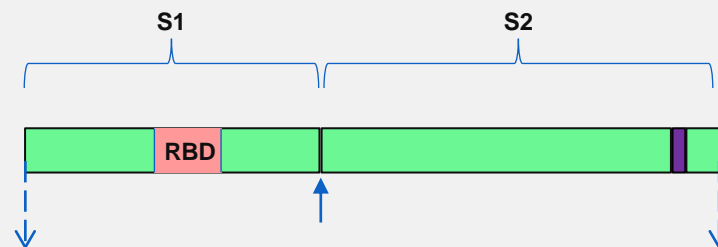
**ADVANCING  
5 CLINICAL  
PROGRAMS  
IN 2021**

**2 PROGRAMS  
FUNDED BY U.S.  
GOVERNMENT**

# AdCOVID: SINGLE-DOSE INTRANASAL VACCINE FOR COVID-19

## VACCINE CANDIDATES BASED ON REPLICATION-DEFICIENT Ad5 PLATFORM

### SARS-CoV-2 Spike Protein



### Vaccine Candidates

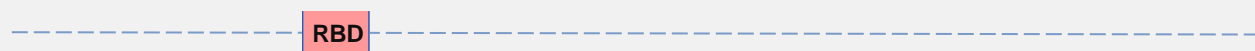
Full-length Spike



S1 Spike Domain



RBD Spike Domain

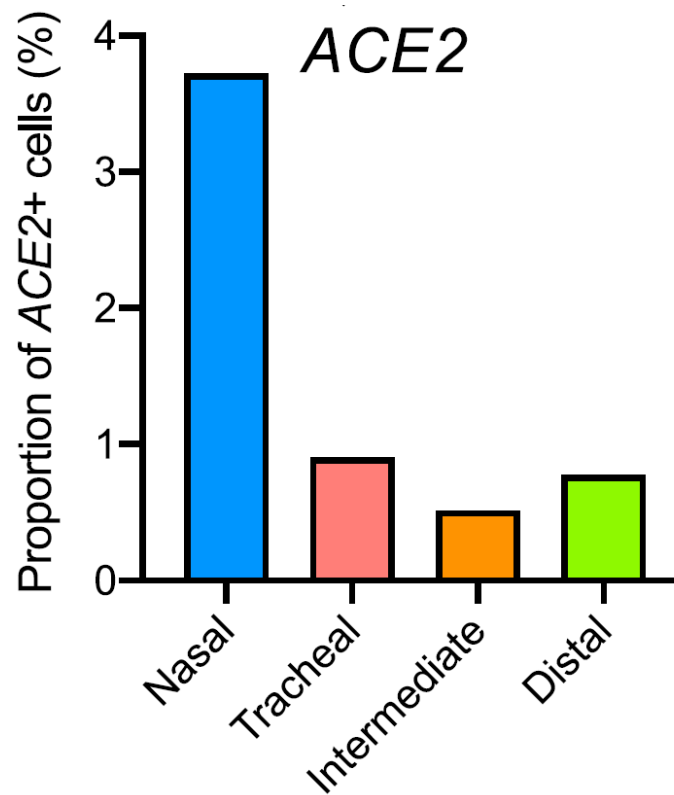
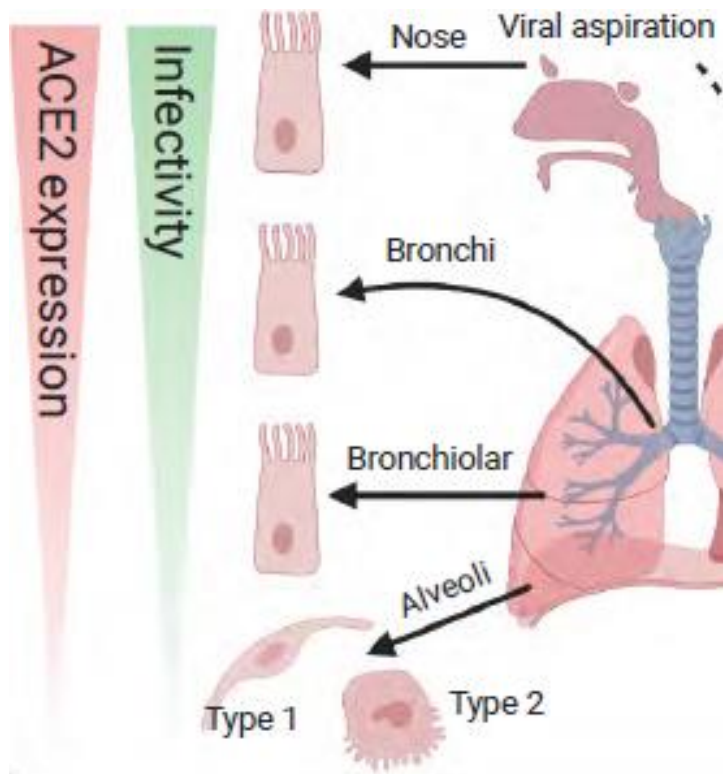


# AdCOVID: IMPROVING UPON CURRENTLY AUTHORIZED VACCINES

- **Greater ease and comfort of administration**
  - *Single dose, simple nasal spray, no systemic dissemination in GLP biodistribution study*
- **Broader immunity**
  - *Induces neutralizing antibody, T cells and nasal mucosal immunity*
- **Potential to block infection AND transmission**
  - *Stimulates mucosal immunity at the site of viral entry, replication and transmission —the nasal cavity*
- **Room temperature stable for months**
  - *Allows for distribution and deployment without refrigeration or ultra low-temp freezers*
- **Improved safety profile**
  - *Indistinguishable from placebo in Altimmune's clinically tested vaccine platform*
- **Durable antibody response**
  - *13+ months of protective response demonstrated by Altimmune's clinically tested vaccine platform*

# AdCOVID: SINGLE-DOSE INTRANASAL VACCINE FOR COVID-19

## MUCOSAL IMMUNITY TO BLOCK INFECTION AND TRANSMISSION IN NASAL CAVITY



Cell

*“highest ACE2 expression in the nose...high SARS-CoV-2 infection in proximal airways vs distal airways”*

Hou YJ, Cell 182, 429–446, 23 July 2020



## AdCOVID: COMPELLING PRECLINICAL DATA

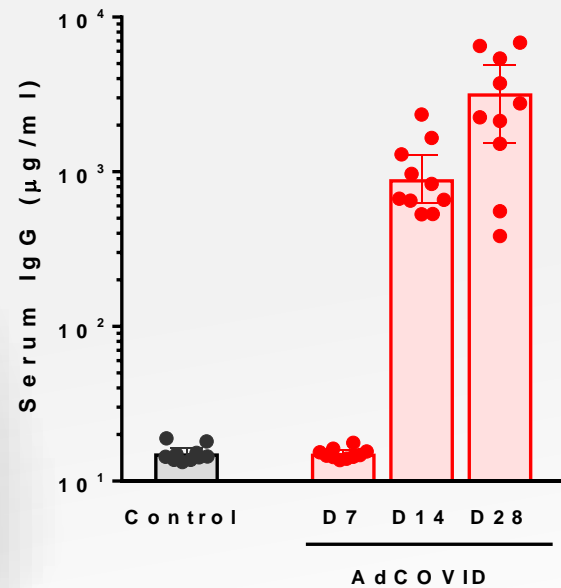
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- Potent induction of multiple arms of the immune system
  - Systemic neutralizing antibody
  - Mucosal IgA response
  - Mucosal and systemic T cell responses
- Longevity of serum antibody responses
- Rapid recruitment of innate and adaptive immune cells into respiratory tract and draining lymph nodes consistent with induction of mucosal and systemic immunity
- Potent CD8+ T cell response in lung with resident memory phenotype

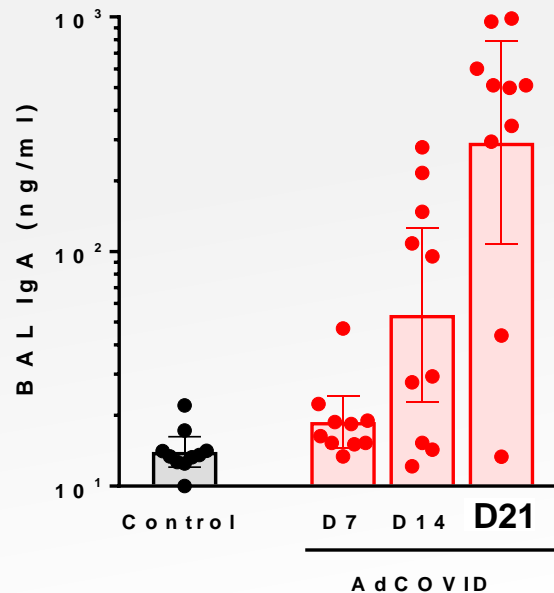
# AdCOVID: STIMULATION OF BOTH SERUM AND MUCOSAL ANTIBODIES

## Potent Antibody Responses in Serum and Respiratory Tract

**Anti-spike serum IgG**  
Geomean + 95% CI



**Anti-spike mucosal IgA**  
Geomean + 95% CI



Single intranasal dose of AdCOVID

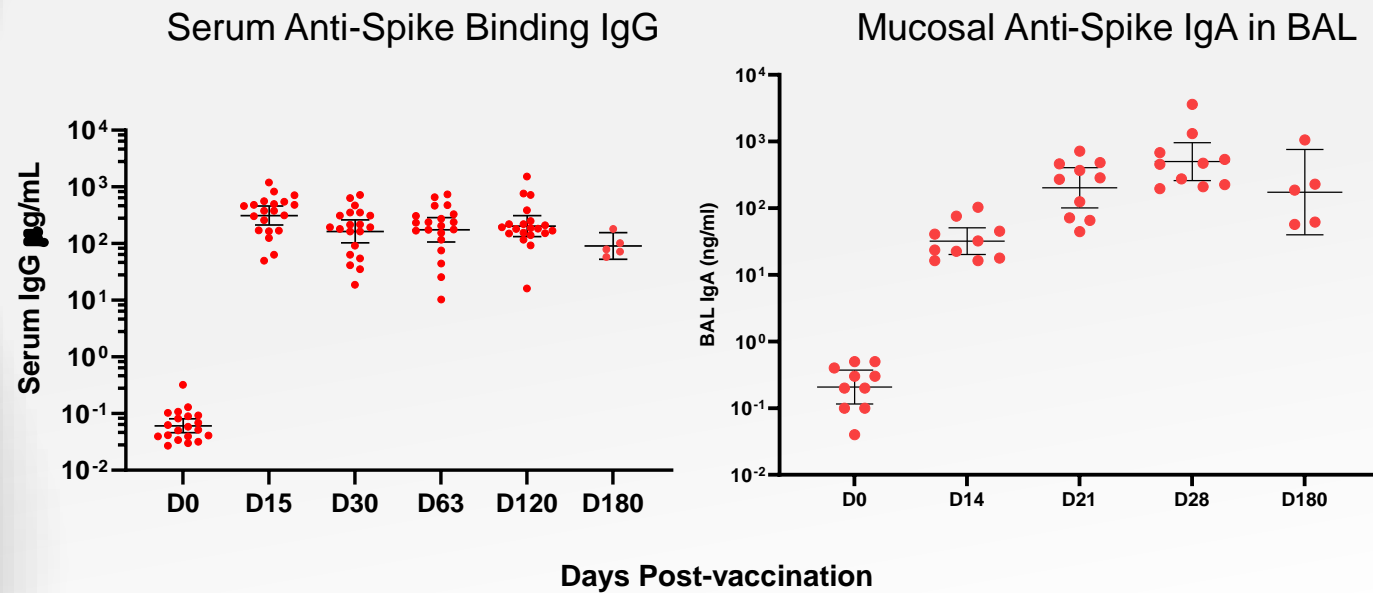
Anti-Spike IgG over 800 µg/mL IgG in serum by Day 14

29-fold induction of mucosal IgA in the respiratory tract by Day 21

# AdCOVID: DURABLE SYSTEMIC AND MUCOSAL ANTIBODY RESPONSES

SERUM IgG AND MUCOSAL IgA TITERS MAINTAINED FOR AT LEAST 6 MONTHS

## Spike-specific serum IgG and respiratory IgA titers over time

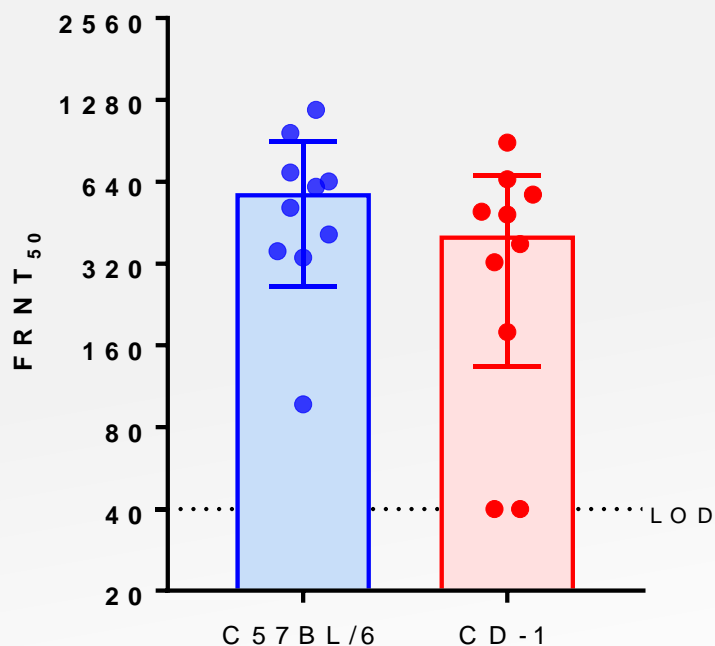


Single intranasal dose of AdCOVID

IgG measured in serum, IgA in bronchoalveolar lavages (BAL)

# AdCOVID: POTENT INDUCTION OF SERUM NEUTRALIZATION TITERS

## Mean Neutralizing Antibodies Against Wild-type SARS-CoV-2



Single intranasal dose of AdCOVID

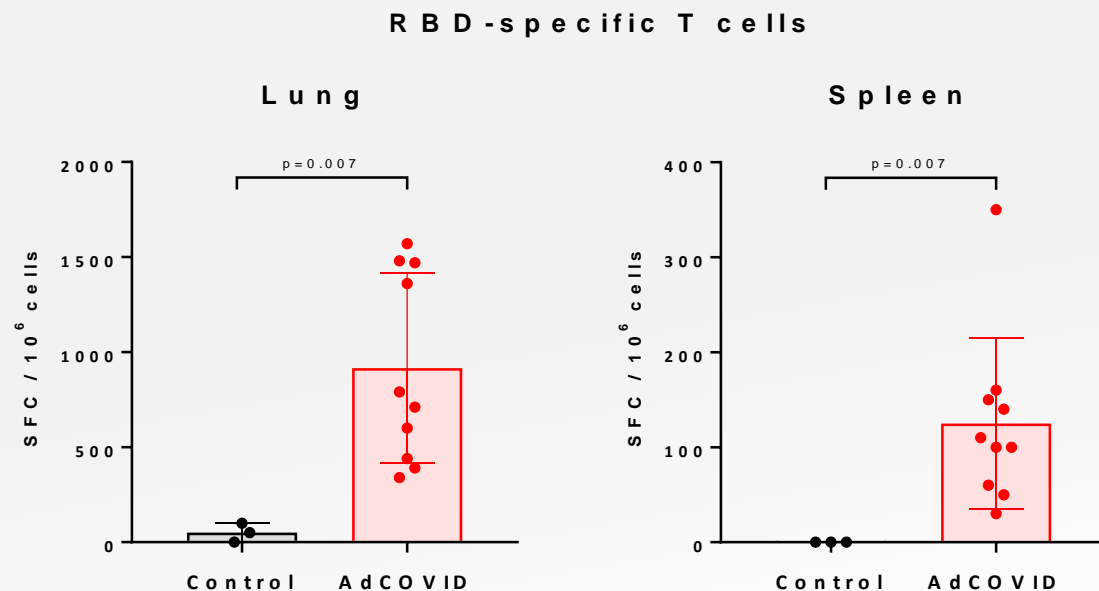
Consistent results in two strains of mice

Responses are several fold higher than reported for most convalescent sera

# AdCOVID: STIMULATION OF MUCOSAL & SYSTEMIC T CELL IMMUNITY

## RBD-SPECIFIC T CELLS IN THE LUNG AND SPLEEN

### RBD-specific T Cell Responses



Single intranasal dose of AdCOVID

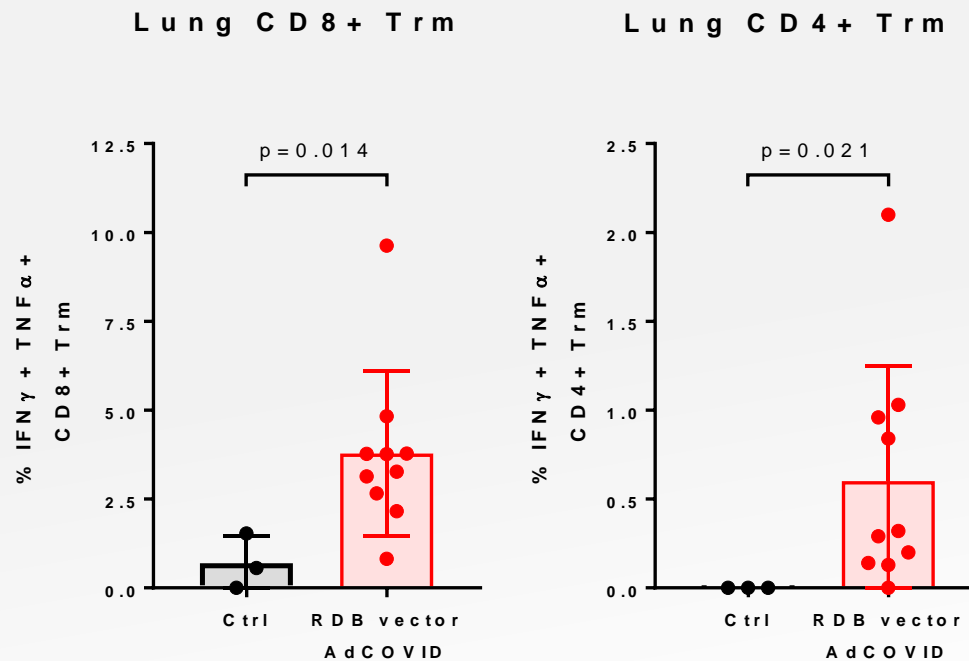
Mucosal (lung) and systemic (spleen) T cell responses

T cell response especially strong in lung

# AdCOVID: CELL IMMUNITY INCLUDED RESIDENT MEMORY T CELLS

## TISSUE-LOCALIZED T CELLS POISED TO FIGHT LUNG INFECTION

### RBD-specific Resident Memory T Cell Responses



Single intranasal dose of AdCOVID

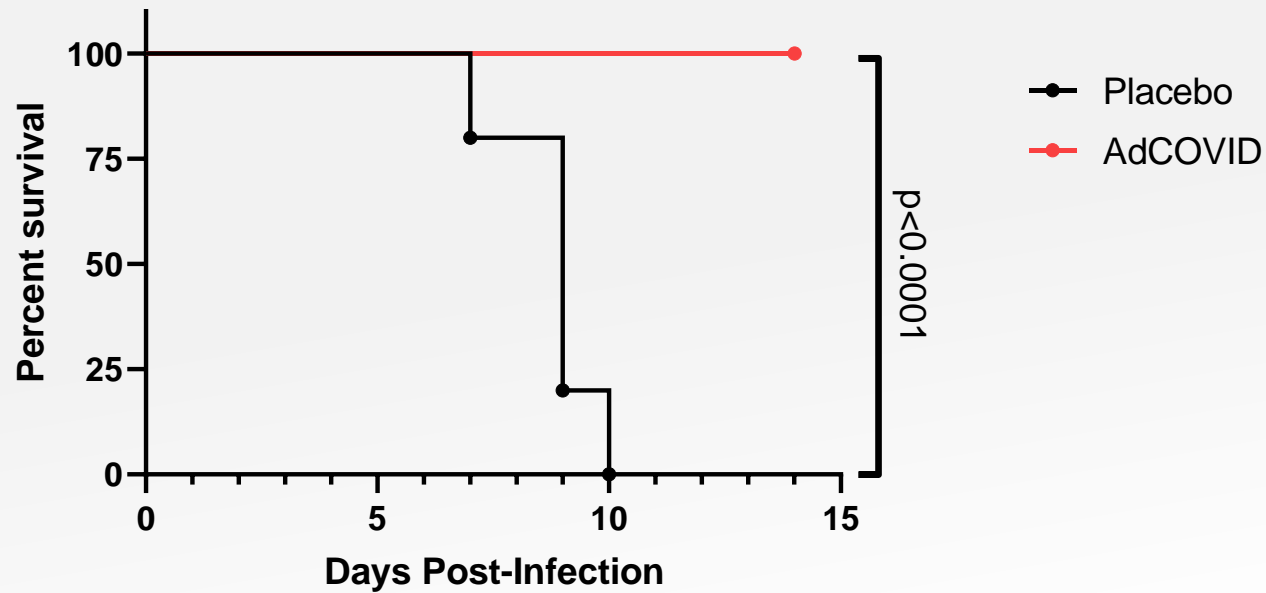
T cells with a resident memory phenotype stay in lung poised for protection

Strong CD8+ killer T cell response to clear infected lung cells

# AdCOVID: SINGLE DOSE EFFICACY

COMPLETE PROTECTION AGAINST DISEASE FOLLOWING LETHAL CHALLENGE

## K18-hACE2 Transgenic Mouse Model



Single intranasal dose of AdCOVID 1 month prior to challenge

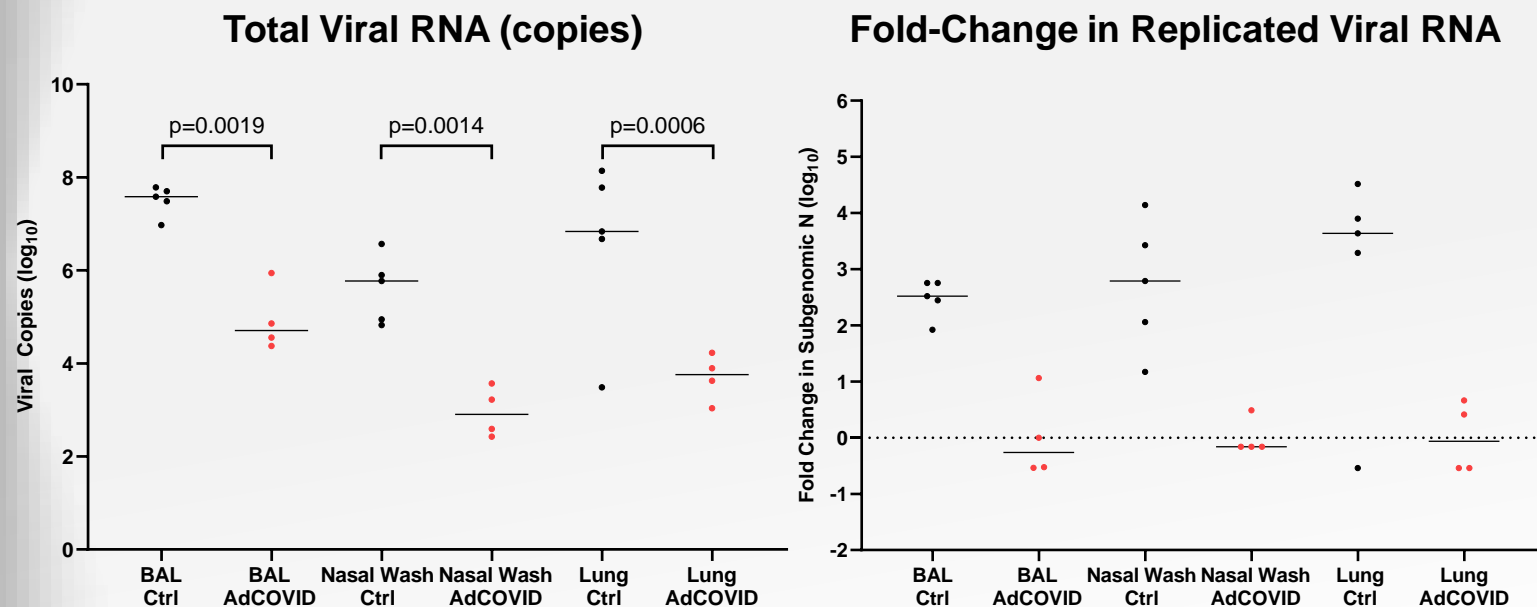
Challenged with  $1 \times 10^4$  FFU of SARS-CoV-2 (AZ1 isolate)

No weight loss in the AdCOVID vaccinated group

# AdCOVID: REPRESSION OF VIRAL REPLICATION

## 1000-FOLD REDUCTION IN TOTAL AND REPLICATING VIRUS

### K18-hACE2 Transgenic Mouse Model



Single intranasal dose of AdCOVID 1 month prior to challenge

Challenged with  $5 \times 10^3$  pfu SARS-CoV-2 (WA1 isolate)

Viral titers determined Day 3 post-challenge



# AdCOVID: PHASE 1 CLINICAL TRIAL

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- Healthy volunteers randomized to AdCOVID or placebo within 6 cohorts (prime alone or prime + boost at 3 dose levels)
- Safety endpoints
  - Reactogenicity (local and systemic) and adverse events
- Immunogenicity endpoints:
  - Anti-SARS-CoV-2 spike IgG antibody levels
  - Virus neutralizing antibody titer against live and/or pseudotype SARS-CoV-2 virus
  - Anti-SARS-CoV-2 RBD T cell responses and subsets
  - Anti-SARS-CoV-2 spike IgA
  - Antibody responses based on pre-dose Ad5 antibody levels

**Phase 1 data readout expected Q2 2021**

# AdCOVID: IDEALLY SUITED FOR ADULTS AND CHILDREN

- Excellent safety profile of platform represents an essential characteristic for a pediatric vaccine
- Intranasal (needle-free) administration ideal for acceptance by children and adolescents
- Increasing recognition that children also experience COVID-19, including severe disease
- Perpetual cohorts of children, non-immune to SARS-CoV-2, will sustain transmission to each other and to those with waning or insufficient immunity
- Herd immunity can only be attained through comprehensive vaccination strategies



## AdCOVID: IDEALLY SUITED FOR BOOSTING PRIOR IMMUNITY

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- AdCOVID may be used as booster following waning of immunity following natural infection or vaccination to boost systemic immunity and provide a local mucosal response
- None of the authorized COVID-19 vaccines elicit mucosal immunity in the respiratory tract
  - Stimulation of mucosal IgA and mucosal T cell responses for improved protection and reduced transmission by “prime-pull” mechanism
  - Enhance durability of immune response
  - Reduce adverse events likely associated with mRNA boost
  - Response to variants of concern

## AdCOVID: ADDRESSING EMERGING CHALLENGES (VARIANT STRAINS)

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- Manufacturing of variant strains underway for evaluation in prelicensure clinical trials
  - Focus on E484K variants
  - Demonstrate efficient response to changing landscape of pandemic
  - Preventing reservoir of asymptomatic transmission through mucosal immunity may reduce emergence of new variants
  - Phase 2 study with E484K variant vaccine planned later in 2021

# AdCOVID: NEAR-TERM CLINICAL DEVELOPMENT PLANS IN 2021

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- U.S. and multi-national studies
  - Phase 2 adult study in LMIC to support late-phase development and special populations
  - Transmission study in households (LMIC)
  - Vaccination with variant vaccine in previously infected or vaccinated individuals
  - Pediatric age-de-escalation
  - Maternal immunization
- Phase 3 pivotal trial initiation late Q4 2021

# AdCOVID: DIFFERENTIATION FROM OTHER VACCINE APPROACHES

Factor	AdCOVID	RNA	DNA	Protein	Other Vectored
Number of Doses	1	2	2	2	1 - 2
Route of Administration	Nasal Spray	Injection	Injection	Injection	Injection
Nasal Mucosal Immunity	Yes	No	No	No	No
Ease of Deployment (Vaccine complexity, healthcare training and product stability)	++++	+ / ++	++	+++	+++





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