VAXART VAAST® Platform Pandemic Vaccines

World Vaccine Congress

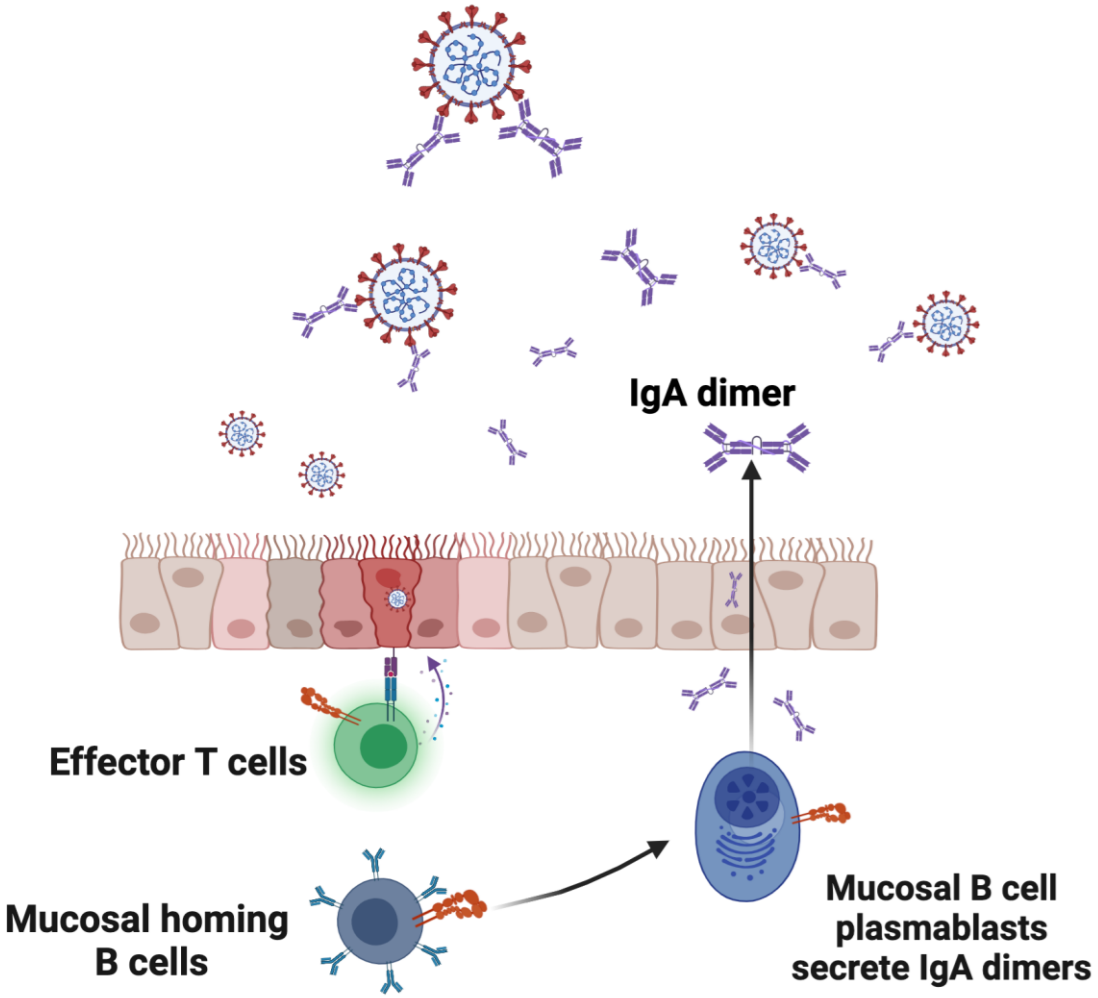
James F. Cummings, MD

April 01, 2026

Forward Looking Statement

This presentation contains forward-looking statements that involve substantial risks and uncertainties. All statements, other than statements of historical facts, included in this presentation regarding Vaxart's strategy, prospects, plans and objectives, results from preclinical and clinical trials, commercialization agreements and licenses, beliefs and expectations of management are forward-looking statements. These forward-looking statements may be accompanied by such words as "believe," "could," "potential," "expect," "will" and other words and terms of similar meaning. Examples of such statements include, but are not limited to, statements relating to Vaxart's ability to develop and commercialize its product candidates; expected clinical results and trial data (including plans with respect to the proposed COVID-19 vaccine program); Vaxart's intention to continue its efforts to advance its oral tablet seasonal flu vaccine; Vaxart's expectations with respect to the important advantages it believes its oral vaccine platform can offer over injectable alternatives, particularly for mucosal pathogens such as norovirus, flu and RSV, as well as coronaviruses such as SARS, MERS and COVID-19; and Vaxart's expectations with regard to the vaccination market. Vaxart may not actually achieve the plans, carry out the intentions or meet the expectations or projections disclosed in the forward-looking statements and you should not place undue reliance on these forward-looking statements. Actual results or events could differ materially from the plans, intentions, expectations and projections disclosed in the forward-looking statements. Various important factors could cause actual results or events to differ materially from the forward-looking statements that Vaxart makes, including uncertainties inherent in research and development, including the ability to meet anticipated clinical endpoints, commencement and/or completion dates for clinical trials, regulatory submission dates, regulatory approval dates and/or launch dates, as well as the possibility of unfavorable new clinical data and further analyses of existing clinical data; the risk that clinical trial data are subject to differing interpretations and assessments by regulatory authorities; whether regulatory authorities will be satisfied with the design of and results from the clinical studies; decisions by regulatory authorities impacting labeling, manufacturing processes, and safety that could affect the availability or commercial potential of any product candidate, including the possibility that Vaxart's product candidates may not be approved by the FDA or non-U.S. regulatory authorities; that, even if approved by the FDA or non-U.S. regulatory authorities, Vaxart's product candidates may not achieve broad market acceptance; that a Vaxart collaborator may not attain development and commercial milestones; that Vaxart or its partners may experience manufacturing issues and delays due to events within, or outside of, Vaxart's or its partners control, including the recent outbreak of COVID-19; that Vaxart or its partners may not be able to obtain, maintain and enforce necessary patent and other intellectual property protection; that Vaxart's capital resources may be inadequate; Vaxart's ability to obtain sufficient capital to fund its operations on terms acceptable to Vaxart, if at all; the impact of government healthcare proposals and policies; competitive factors; and other risks described in the "Risk Factors" sections of Vaxart's Quarterly and Annual Reports filed with the SEC. Vaxart does not assume any obligation to update any forward-looking statements, except as required by law.

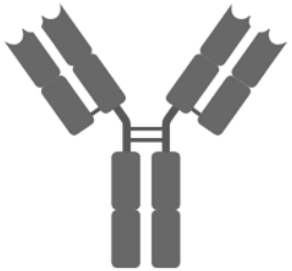
Most Pathogens Invade Through A Mucosal Surface
Mucosal Vaccination Can Promote Mucosal Antibodies At The Surface



Dimer IgA Has Shown Greater Cross-reactivity Compared To IgG

ANTIBODY CROSS-REACTIVITY: IgG VS. IgA

IgG



IgA

Characteristics:

- Major antibody isotype induced systemically
- Binding affinity is significantly reduced when challenged with variants
- Has shown poor cross-reactivity with respect to known variants[1,2]

Characteristics:

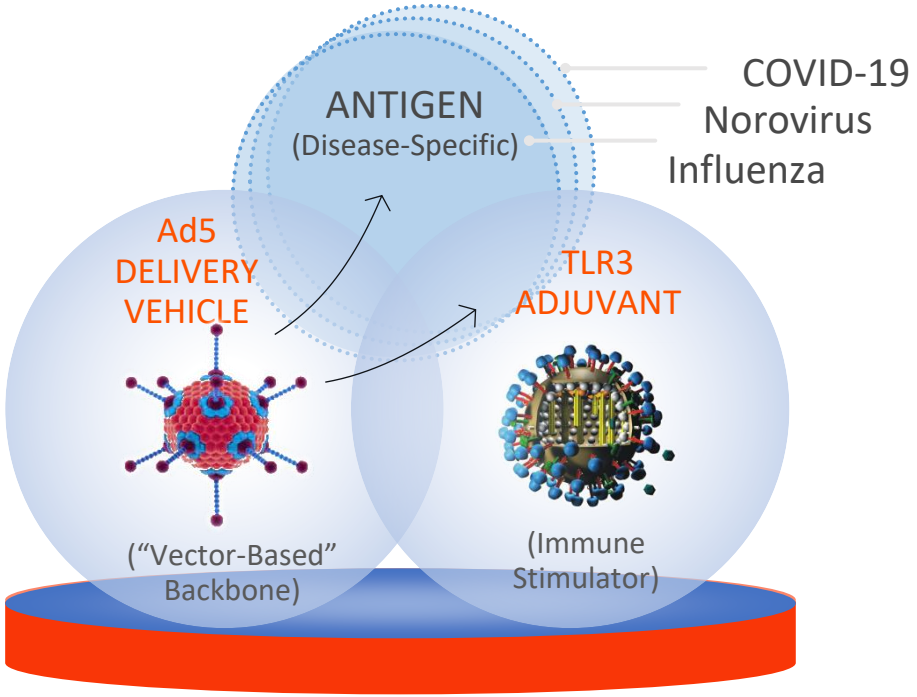
- Predominantly present in the mucosal tissues
- Shown to have greater cross-reactivity against both SARS-CoV-2[1] and Influenza[2] variants

Source: 1. Ejemel, et al, *Nature,* 2020 ; 2. Muramatsu, et al, *PLOS,* 2014.

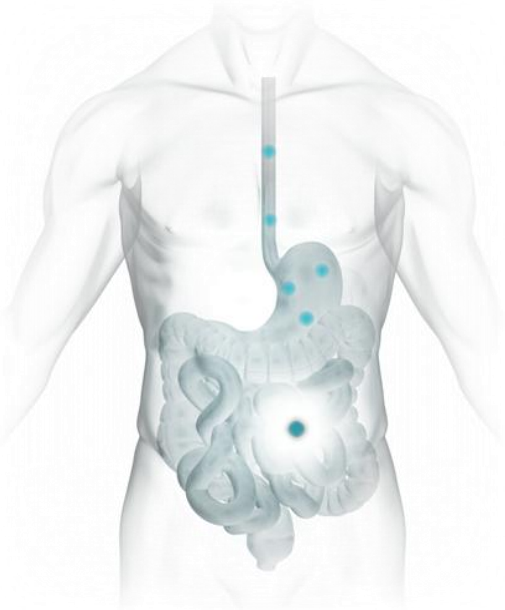
Vaxart Solution: Intestinal Delivery + Targeted Immune Activation: Non-replicating Vector With Molecular Adjuvant

Key issues to solve:

1. Replicating oral vaccines do not work well in the developing world
2. Protein delivered to the intestine is treated like food

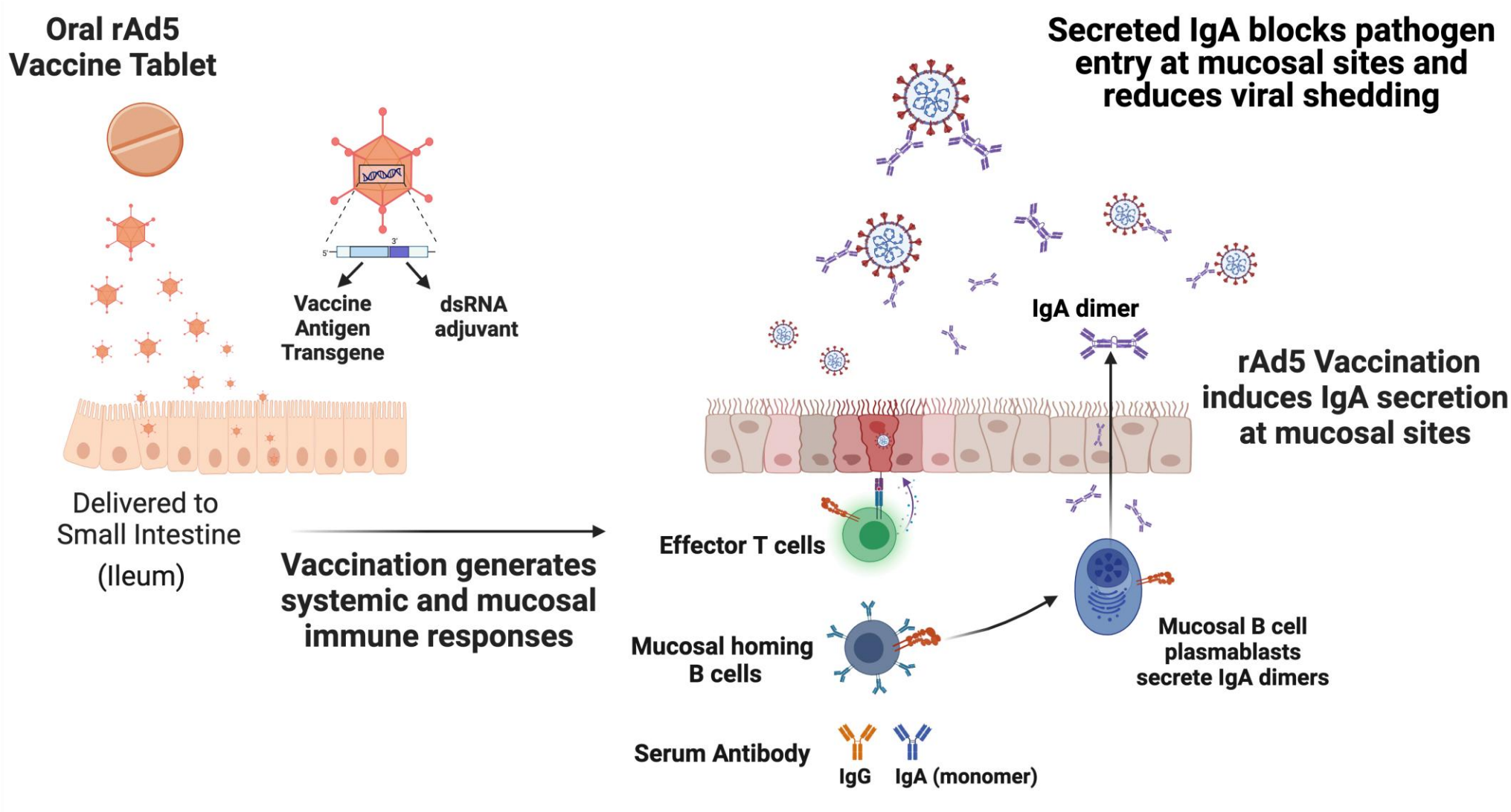


Room-temperature stable enteric-coated tablets



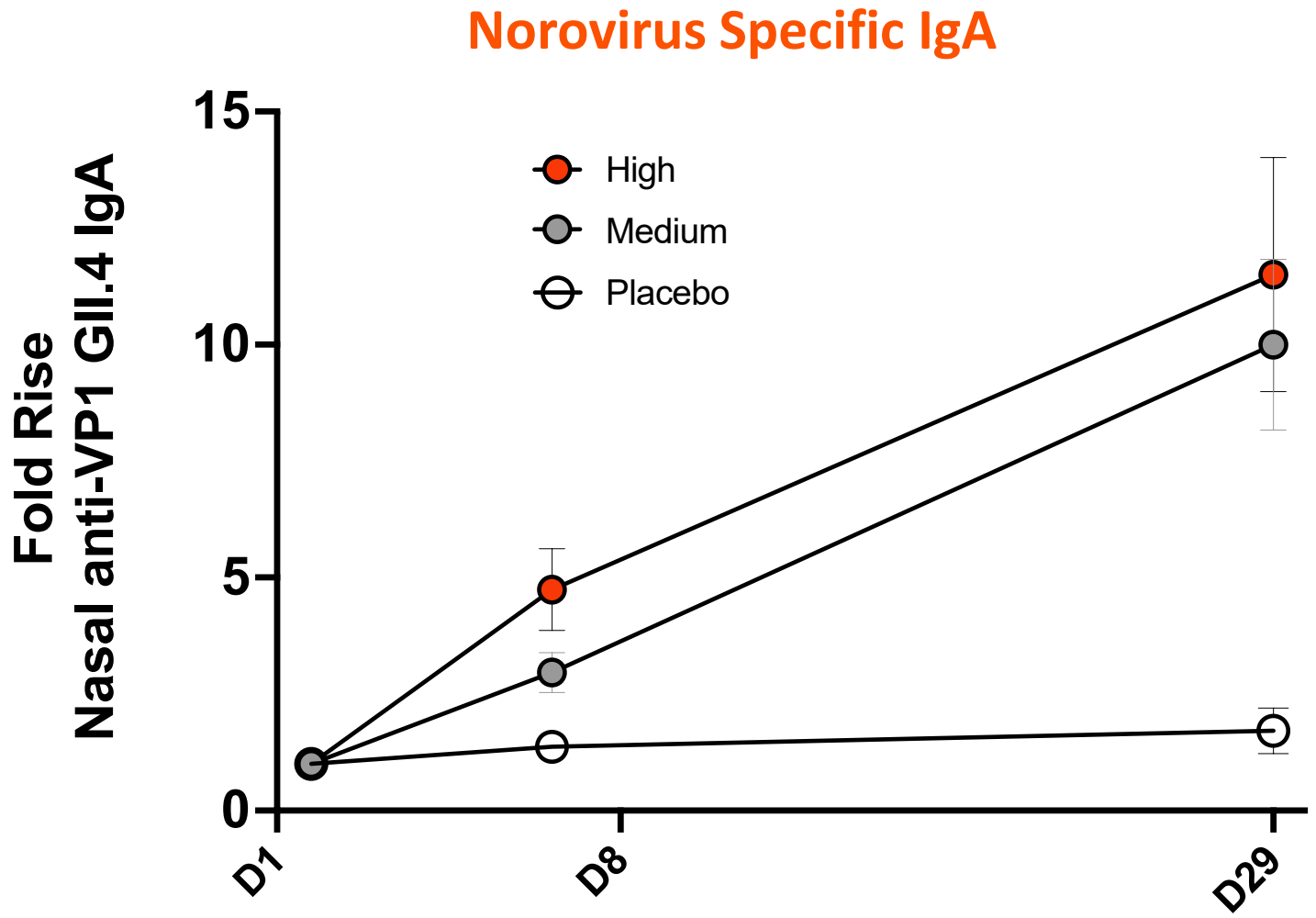
VAAST™: Vector-Adjuvant-Antigen Standardized Technology

Vaxart Vaccine Proposed Mechanism : Make IgA – Block Infection

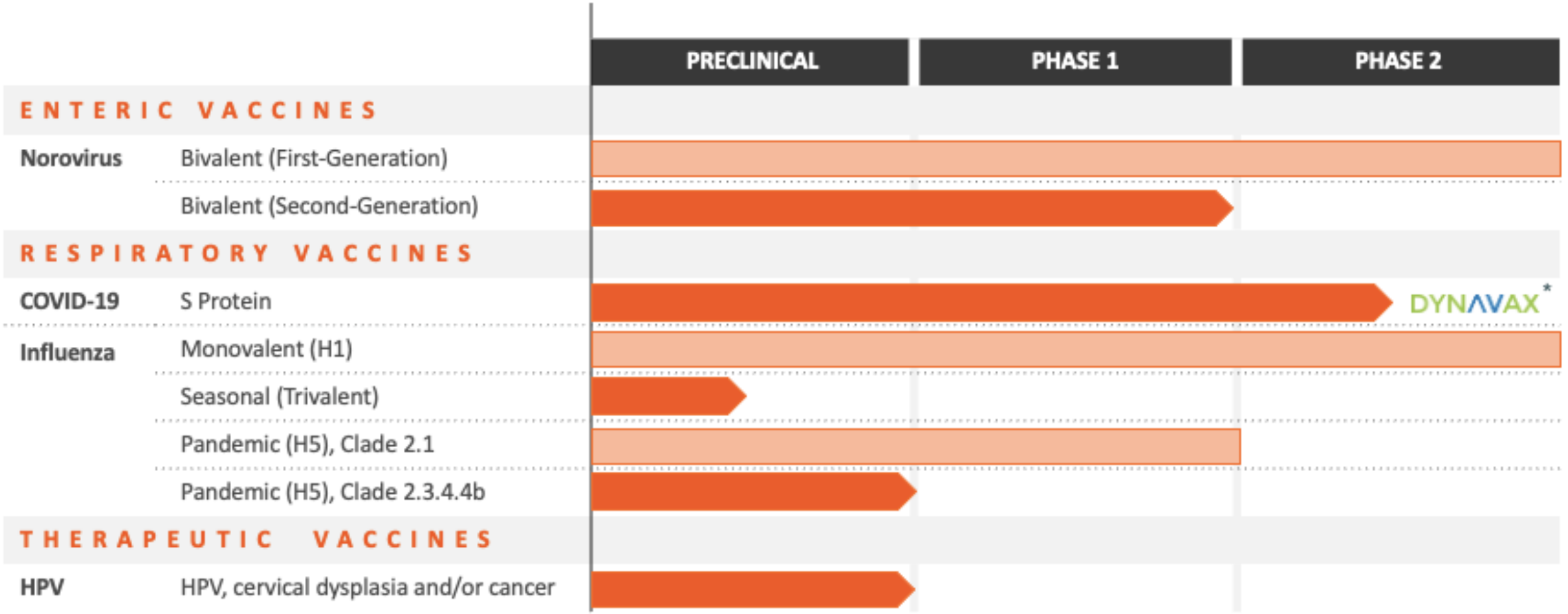


Distal As Well As Local Mucosal IgA By Oral Tablet Vaccination In Humans

Oral tablet vaccine for norovirus makes norovirus specific antibodies in the nose



Multiple Promising Clinical Stage Programs



* Sanofi announced on February 10, 2026, that it had completed its acquisition of Dynavax Technologies Corporation

Pandemic Platform

Respiratory Diseases

- Influenza
- COVID

Influenza Vaccine Candidates

Human Influenza Challenge Study: Challenge After 90 Days

- A single dose administration of one of the following:

Arm 1	VXA-A1.1 oral vaccine + placebo IM injection	(n=60+extra)
Arm 2	QIV injection + oral placebo tablet	(n=60+extra)
Arm 3	Placebo IM injection + oral placebo tablet	(n=30+extra)

- Subjects with baseline HAI titers $\leq$10
- Challenge post randomization after Day 90 (up to 120 days)
  - A wild-type influenza A/Ca/2009/pH1N1 strain was administered to subjects in all treatment groups
  - Virus was propagated on eggs, 3 passages, before use as a challenge virus
- Primary endpoint
  - Number and % of subjects protected against A/CA/2009/pH1N1 challenge by VXA-A1.1 compared to QIV and placebo

Liebowitz, et al, *Lancet ID*, 2020

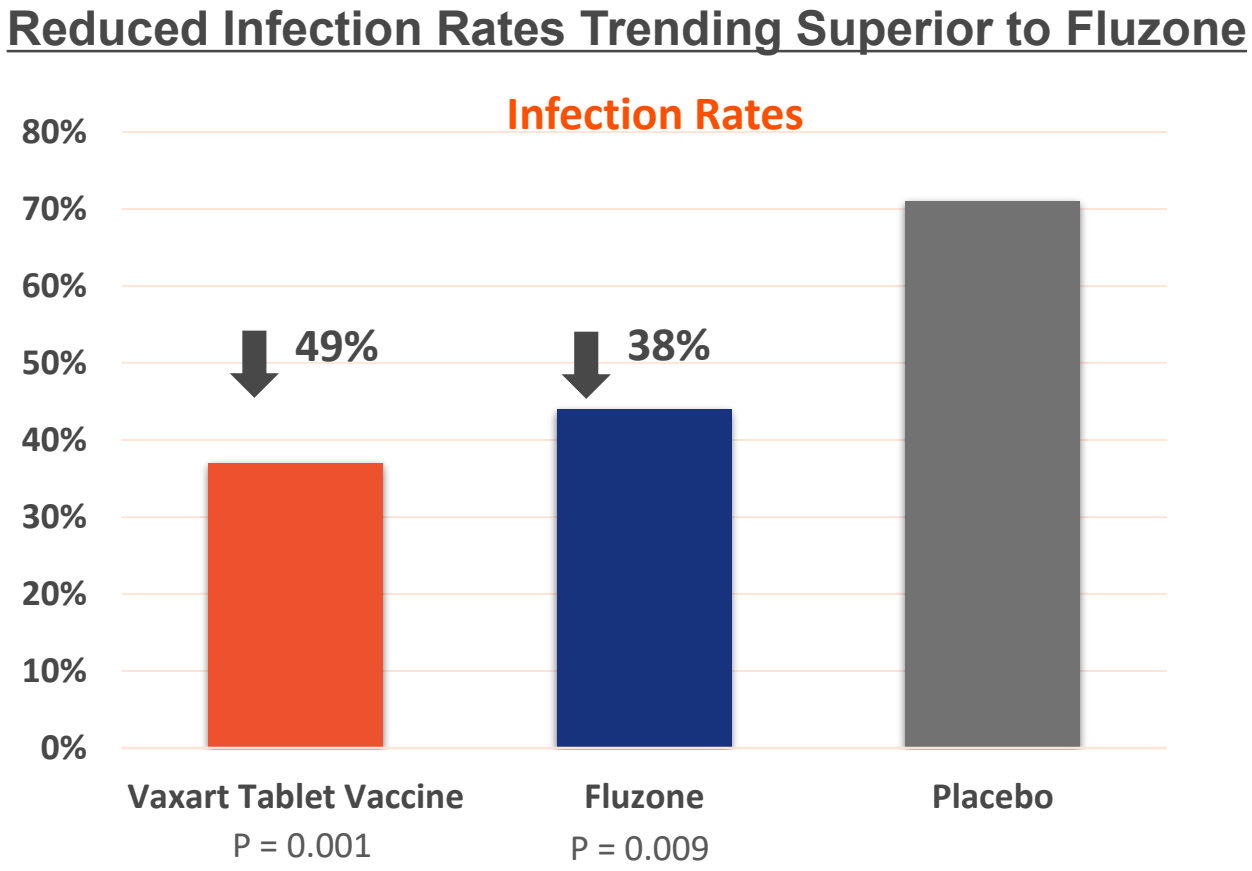
Favorable Safety and Tolerability Profile

Solicited Symptom	Placebo	VXA-A1.1	QIV
	(n=36)	(n=70)	(n=72)
Number of Subjects with Solicited Symptom TEAEs	**15 (42%)**	**20 (29%)**	**26 (36%)**
General Disorders and Nervous System Disorders			
Malaise/Fatigue	5 (14%)	3 (4%)	5 (7%)
Headache	7 (19%)	5 (7%)	6 (8%)
Myalgia/body aches	1 (3%)	1 (1%)	0
Fever	0	2 (3%)	0
Gastrointestinal Disorders			
Diarrhea	**5 (14%)**	**4 (6%)**	**0**
Abdominal Pain	**1 (3%)**	**0**	**1 (1%)**
Nausea	**1 (3%)**	**4 (6%)**	**3 (4%)**
Vomiting	**0**	**0**	**1 (1%)**
Local Symptoms			
Pain at injection site	**1 (2.8%)**	**2 (2.9%)**	**10 (13.9%)**
Tenderness at injection site	**1 (2.8%)**	**3 (4.3%)**	**19 (26.4%)**

Liebowitz, et al, *Lancet ID*, 2020

Demonstration Of Efficacy – Respiratory Virus Challenge In Humans

Oral Vaccine Candidate protected against influenza infection as well as market leading injected vaccine after influenza challenge



- Both vaccines protected against illness and infection
- Oral Vaccine had a different correlate of protection

Infection defined by subjects shedding virus 36 hours after challenge.
Jason Asher, BARDA

Machine Learning Results: IgA Antibody Secreting Cells (ASC) Was The Most Important Immune Parameter To Predict Protection From Oral Immunization

- Random Forest Analysis – builds hundreds of decision trees on random slices of the data, then combines their predictions through majority vote or averaging
  - IgA ASC most important immunological feature for protection against shedding for the Oral Vaccine
  - HAI most important feature for protection against shedding for the QIV vaccine
- Clearly, it takes a very potent serum response to equal the response to a few mucosal homing cells

Oral Vaccine – Most Important Feature (IgA ASC)

IgA ASC Count per 1e6	Predicted Protection Rate
2.3	50%
55.4	75%
108.4	90%
144.5	95%

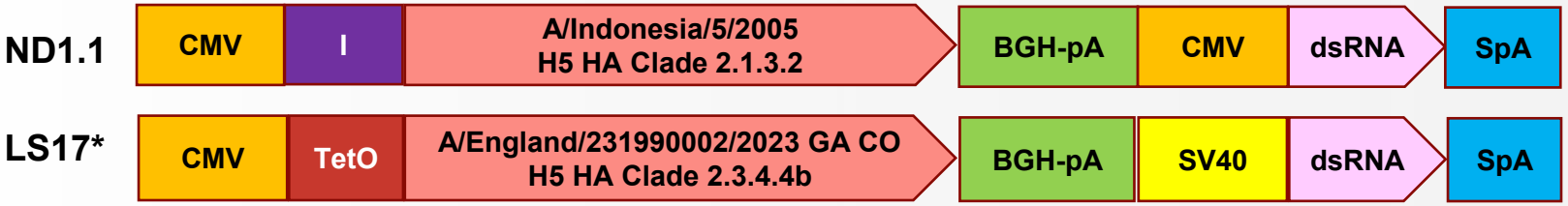
Injected vaccine – Most Important Feature (HAI)

HAI Titer-Day 30	HAI Titer – Day 90	Predicted Protection Rate
82	78	50%
416	269	75%
2100	931	90%
6311	2165	95%

H5 Pandemic Influenza

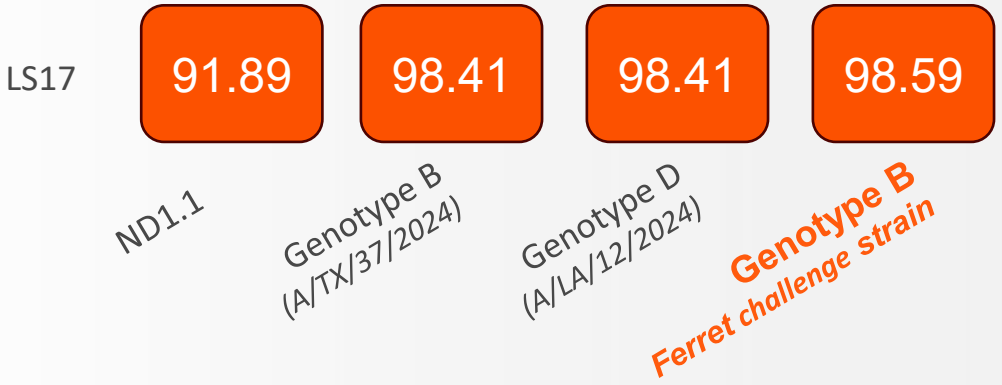
Next Generation H5 (LS17) Has 43% Higher Antigen Expression Level Compared To Old H5 Construct (ND1.1)

H5 constructs based on full length hemagglutinin from A/Indonesia/2005 (ND1.1) and A/England/2023 (LS17)

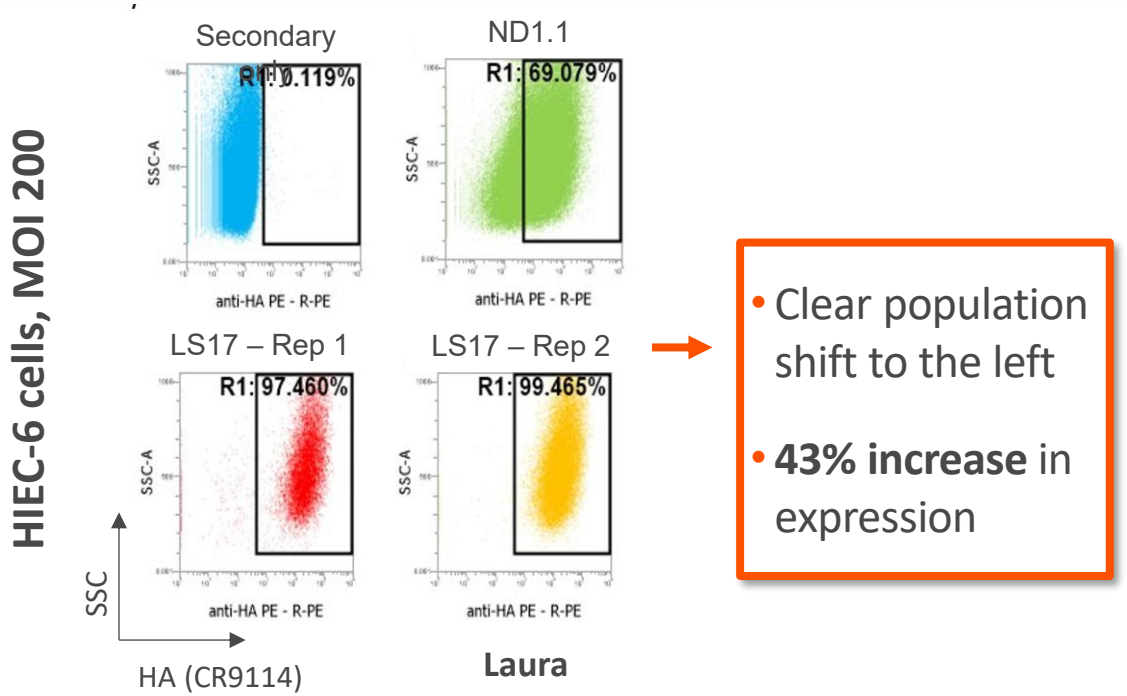


*Next gen H5 construct targeting current outbreak

LS17 HA protein similarity to strains from Clade 2.3.4.4b^



^Aligned with the Clustal Omega program, https://www.uniprot.org/align

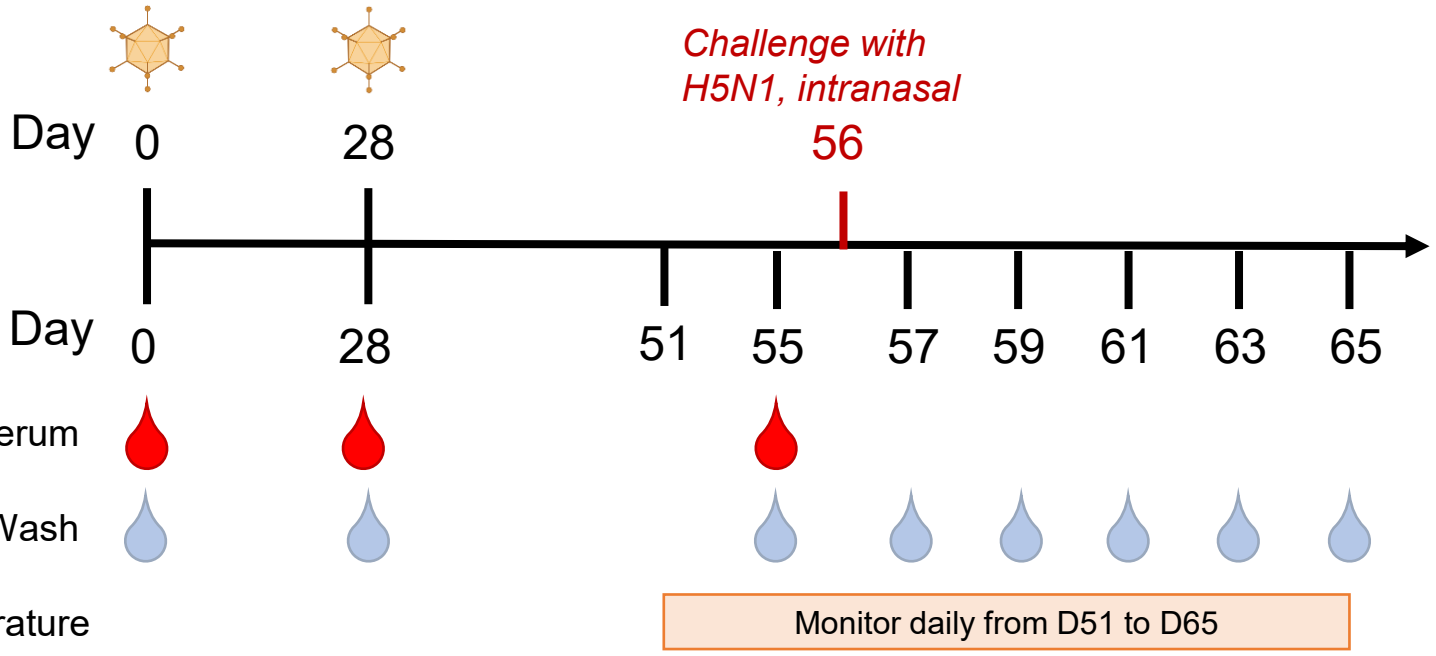


- Clear population shift to the left
- **43% increase** in expression

Vaccination + Challenge Study To Evaluate LS17 Efficacy In Ferrets

Group	Animals
PBS	4M/4F
ND1.1	4M/4F
LS17	4M/4F
Total	**24 ferrets**

Immunization
Oral Endoscope

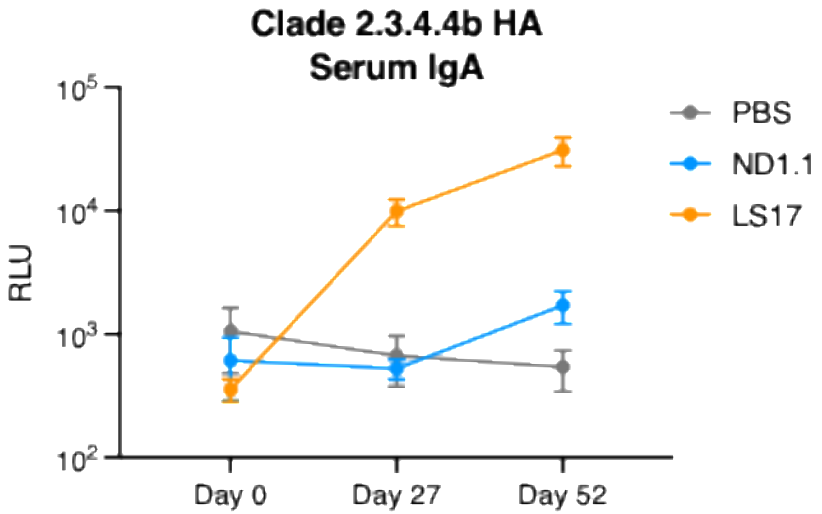


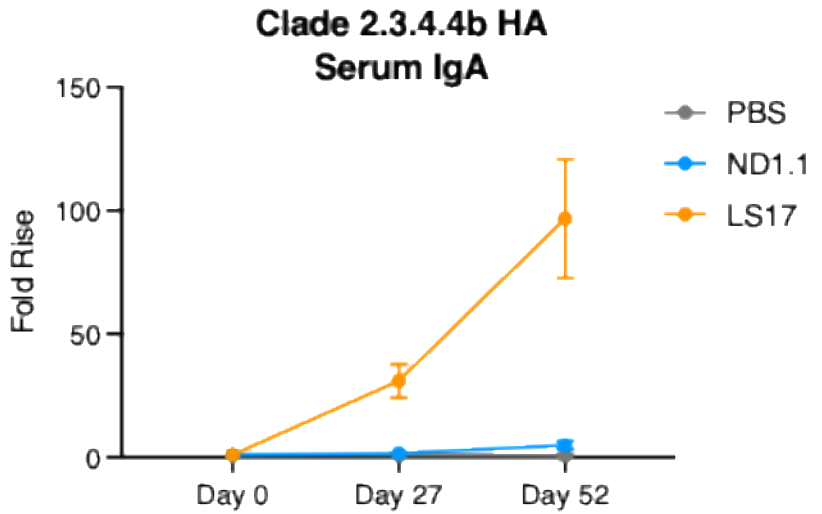
Immunization dose:	1e10 IU/animal, 8 ferrets per group (4M/4F) will be dosed on D0 and D28
Route:	oral endoscopic delivery to the duodenum
Challenge:	all ferrets challenged with H5N1 (Clade 2.3.4.4b, Genotype B, strain A/dairy cow/Texas/24-008749-002-v/2024)

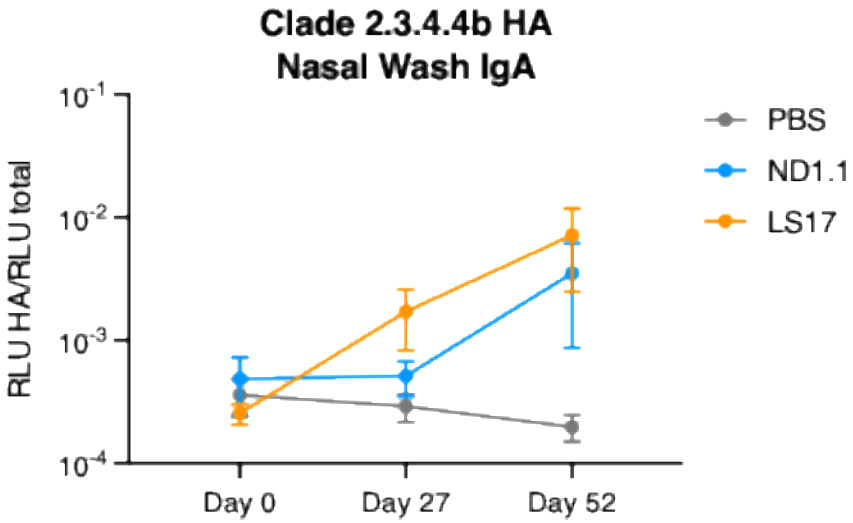
Ferrets Immunized With LS17 Have High Levels Of Anti-clade 2.3.4.4b IgA In Serum And Nasal Washes

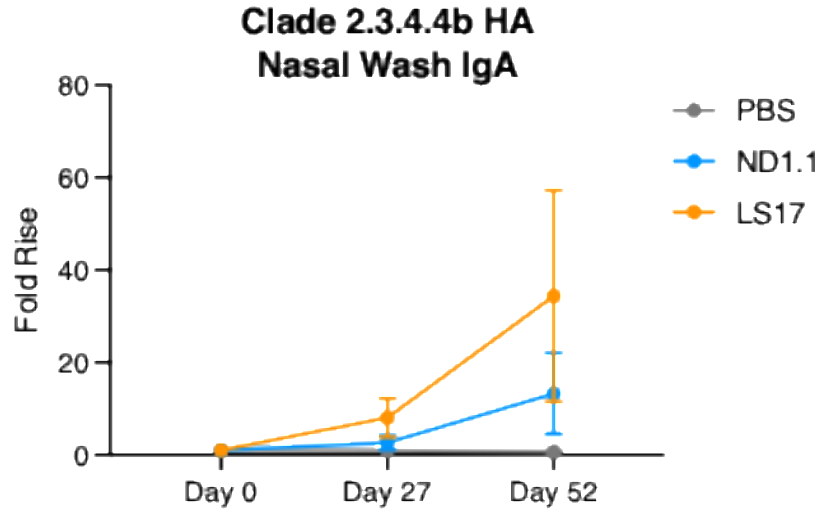
Serum

Nasal Wash

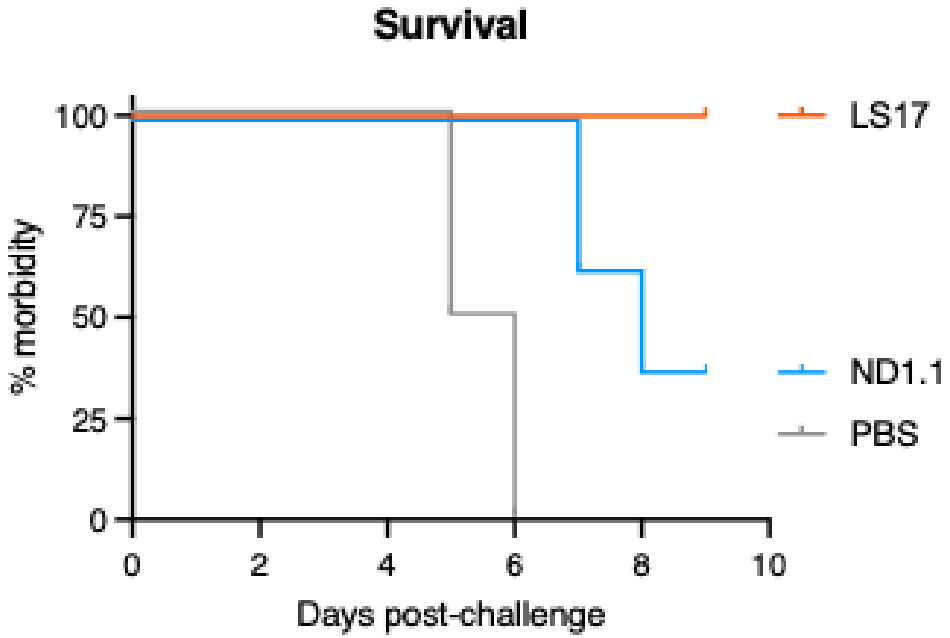








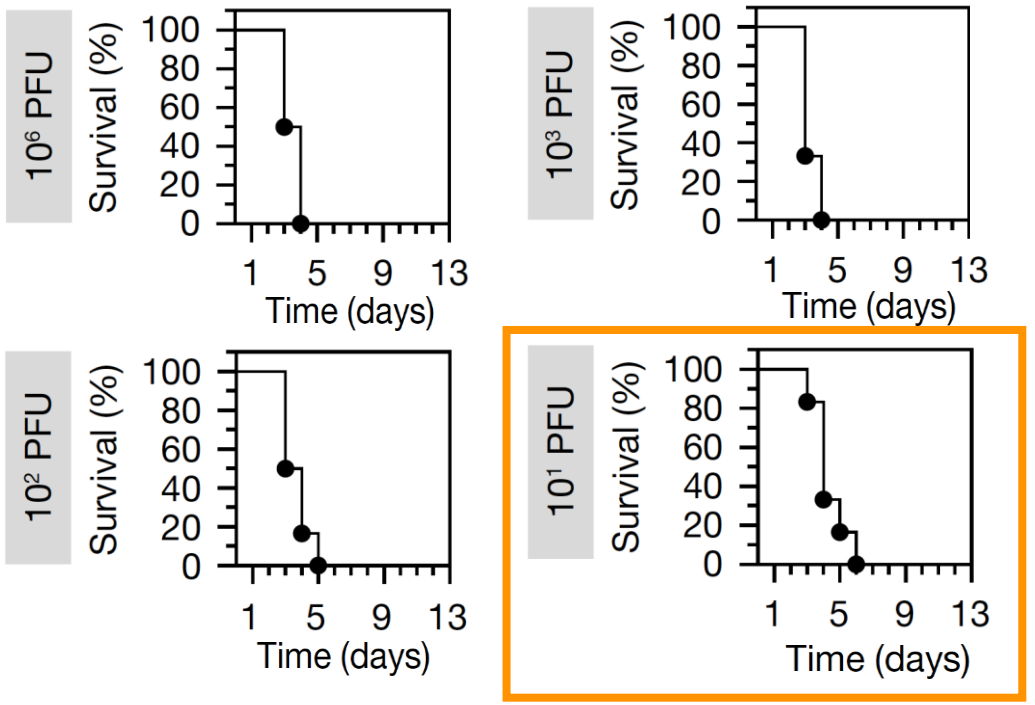
LS17 Protects Ferrets From Lethal Clade 2.3.4.4b HPAI Infection



Ferrets challenged with 1 x 10^5 $TCID_{50}$ of Clade 2.3.4.4b HPAI, Genotype B (A/dairy cow/Texas/24-008749-002-v/2024).

100% of LS17-immunized ferrets were protected from lethal infection.

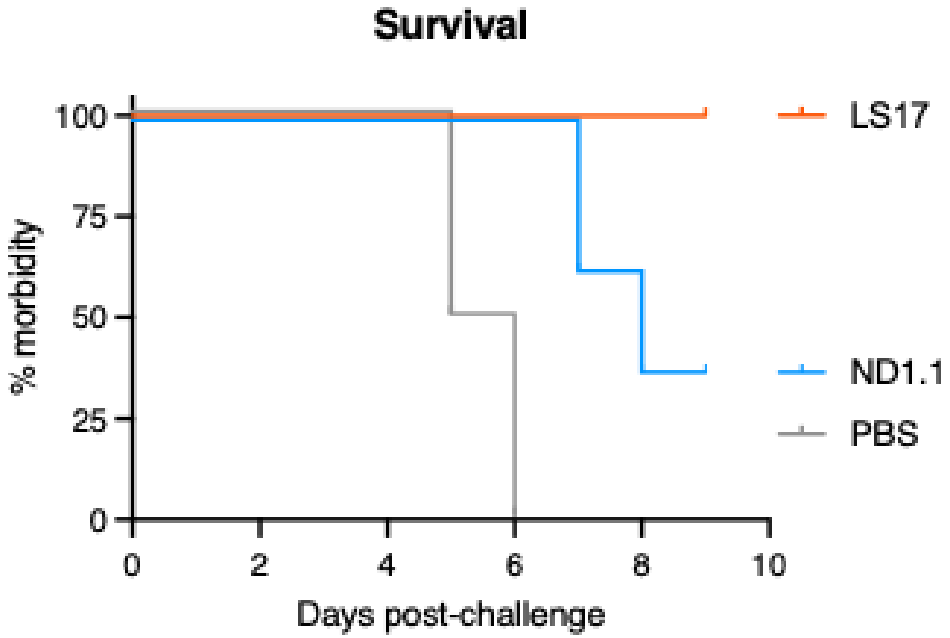
10 PFU of Clade 2.3.4.4b is lethal to ferrets

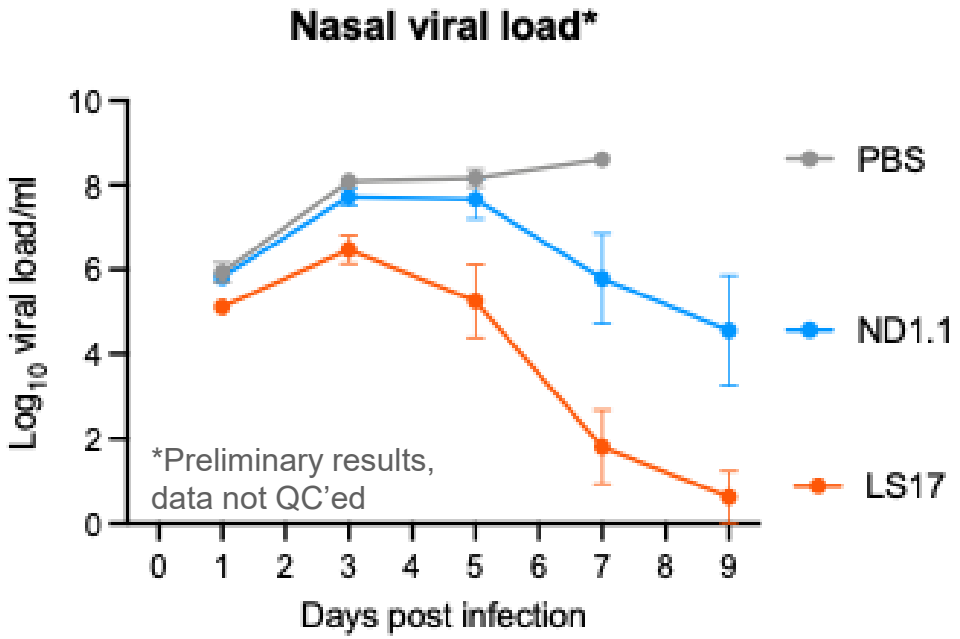


Naïve ferrets were challenge with the indicated PFU of Clade 2.3.4.4b, Genotype B (Strain A/Texas/37/2004).

Gu *et al* (2024) Nature (PMID:39467571)

LS17 Vaccinated Ferrets Also Have Reduced Viral Load In Nasal Washes





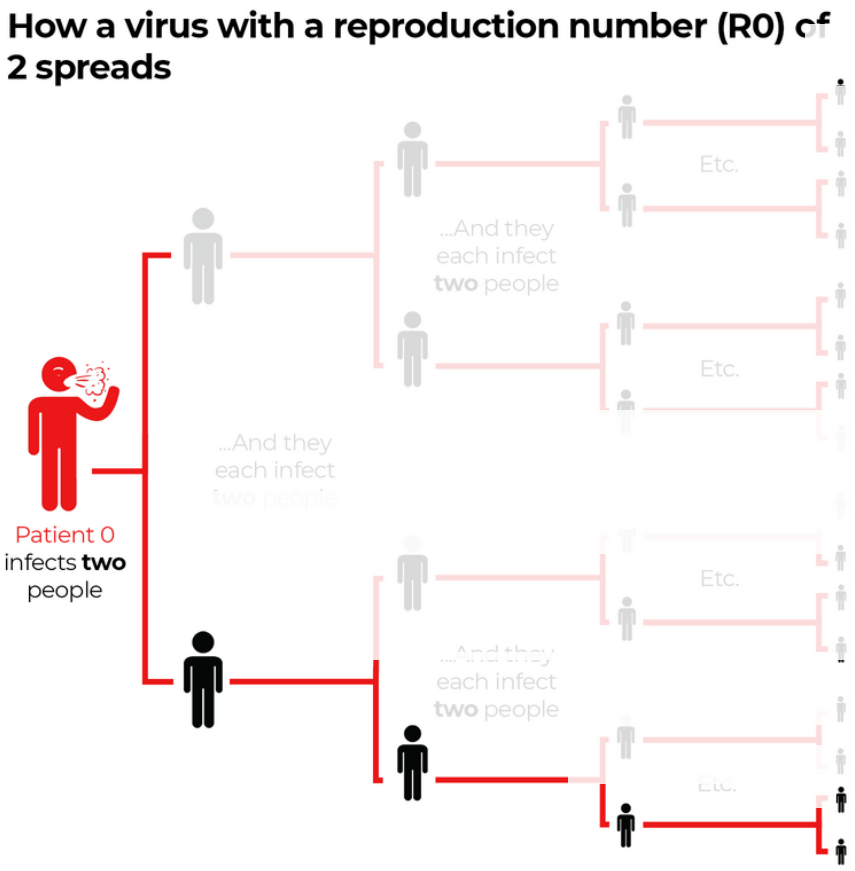
Ferrets challenged with 1 x 10^5 $TCID_{50}$ of Clade 2.3.4.4b HPAI, Genotype B (A/dairy cow/Texas/24-008749-002-v/2024).

Over 2-log reduction in nasal wash viral load in LS17-immunized ferrets by Day 3.

DECREASE SHEDDING!

DECREASE TRANSMISSION?

A Reduction In Transmission May Significantly Impact Virus Spread



theConversation.com

Estimated R0 values for SARS-CoV-2 Variants Worldwide

Delta	6 < R0 < 7
Omicron	9.6 < R0 < 14.61

Liu, et al. *Journal of Travel Medicine*, 2022

Can mucosal vaccination lower the R0?

Mucosal Vaccination(rAD-S Wuhan) Protects Hamsters From Illness By SARS-CoV-2 And Reduces The Area Under The Curve (Shedding Vs Time)

Vaccine: rAd5-S (S only)

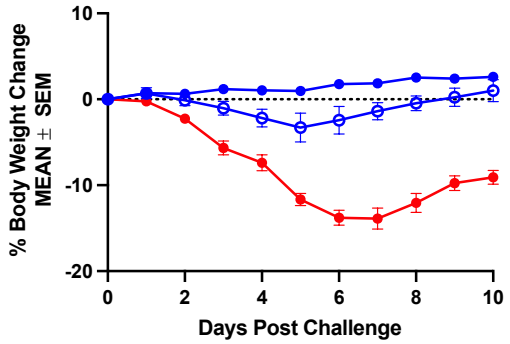
Vaccination

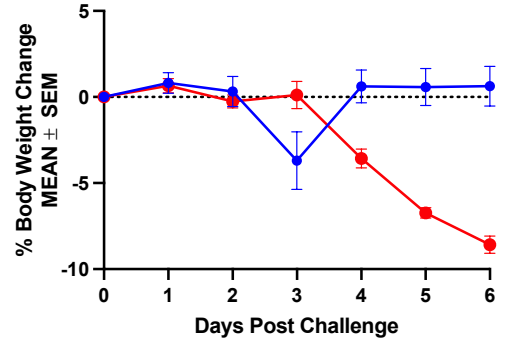
Challenge

Challenge: delta virus

Challenge: omicron virus

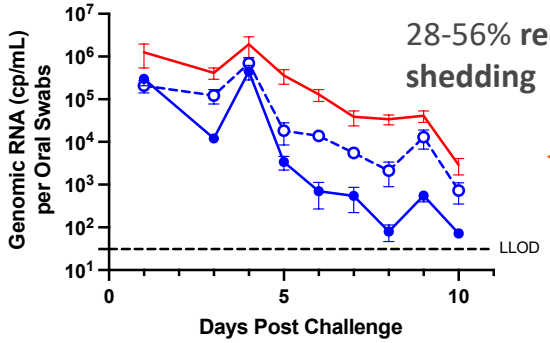
Weight Loss



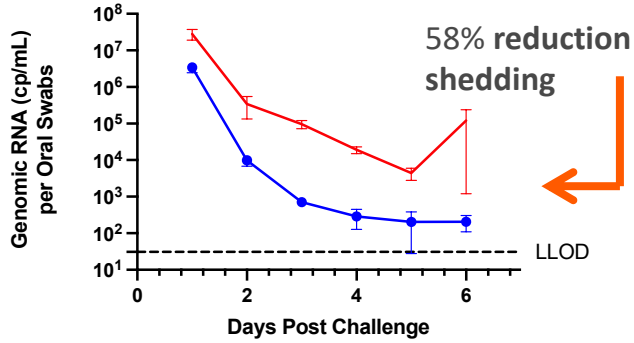


rAd5-S (intranasal)
rAd5-S (oral)
Placebo (intranasal)

Shedding



28-56% **reduction in shedding**



58% **reduction in shedding**

Braun, et al, Frontiers in Immunology 2023

Vaccination elicited high levels of mucosal IgA and serum IgG in addition to protecting from disease

IgA Can Functionally Block Transmission

Generating a targeted immune response in the mucosa could reduce global disease

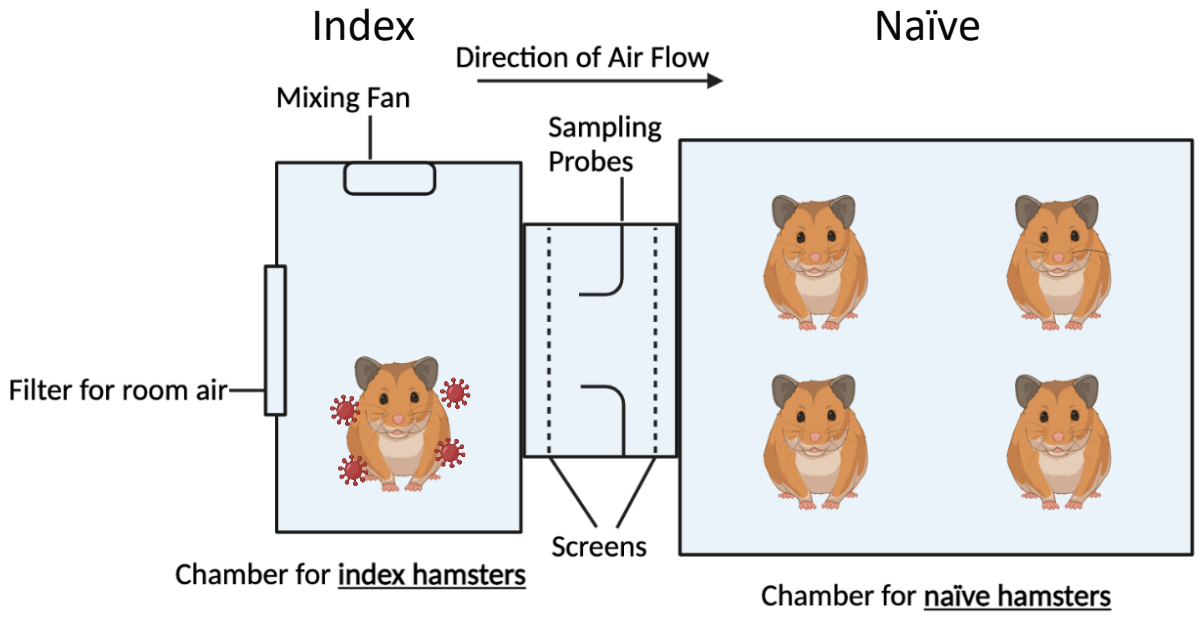
- Norovirus specific breast milk IgA can inhibit diarrhea disease in infants
  - Labayo, et al, EClinMed, 2020
- Studies with guinea pigs given IgA could be protected from transmission when in contact with infected animals
  - Seibert, et al, J. Virology, 2013
- We wanted to see if mucosal responses could block transmission in the other direction
  - Could a nasal mucosal response inhibit transmission to uninfected animals in a vaccine breakthrough – aerosol transmission model

Transmission Study: Model Vaccine Breakthrough To Naïve Subjects

- Goal: Evaluate whether mucosal vaccination blocks transmission and shedding better than an injected vaccine for aerosolized viruses
- Method: Vaccinate animals, give high dose of SARS-CoV-2 (create vaccine breakthrough), expose to vaccine naïve animals for 8 hours

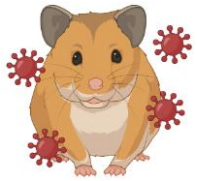
Index animals vaccination groups:

- Vaxart Oral rAd-S
- Vaxart Intranasal rAd-S
- Intramuscular S protein
- Placebo (Oral)



Transmission Blocking: Viral And Disease Burden Is Decreased In Naïve Animals Exposed To Mucosally Vaccinated Animals With Breakthrough Infections

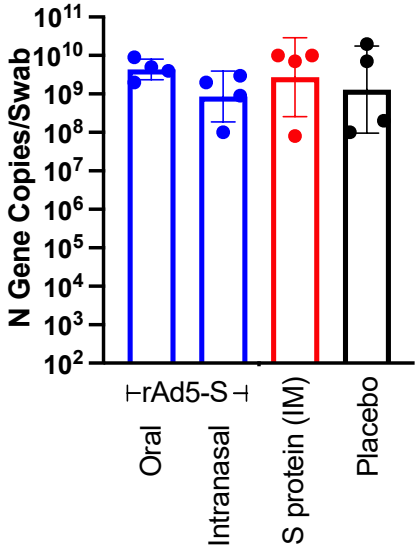
Index Animals
Vaccine Breakthrough



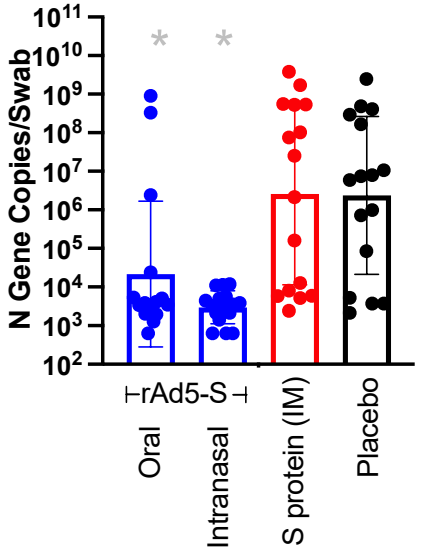
Aerosol exposure (8 hrs)

Naïve Animals
Unvaccinated

Day 1 post infection



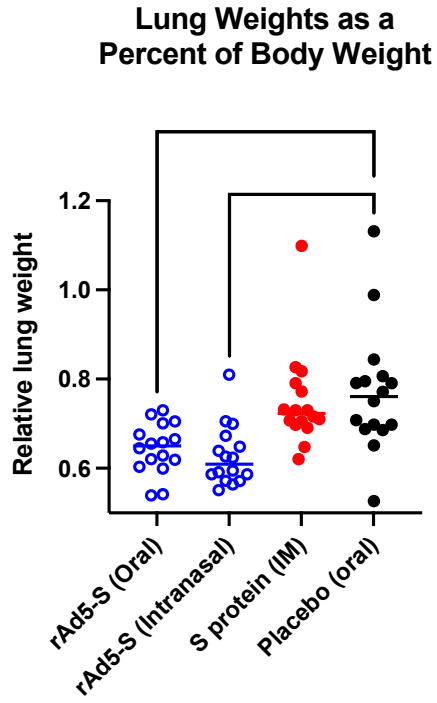
Day 1 post exposure



*** P <0.012 by Fishers' Exact**

Naïve Animals
protected from illness 5 days after exposure

Exposure:



Langel et al, *Sci Translational Med* , 2022

Modeling: How Transmission Impacts Health Care

What is the effect on transmission blocking on infection?

- Assuming an oral vaccine is 50% more effective against both any infection and transmission in the US for a COVID-19 vaccine:
  - 9,481,245 fewer infections
  - 37,100 fewer deaths
  - 1,932,727 fewer hospitalization days
  - 278,292 fewer ICU days[1]

[1] Jeromie Ballreich PhD and Bryan Patenaude, ScD, BMC Public Health, 2022

COVID Vaccine Candidates

COVID Vaccine Development – Chasing Viruses As They Evolve Is Time Consuming

Rapid Emergence of New SARS-CoV-2 Strains

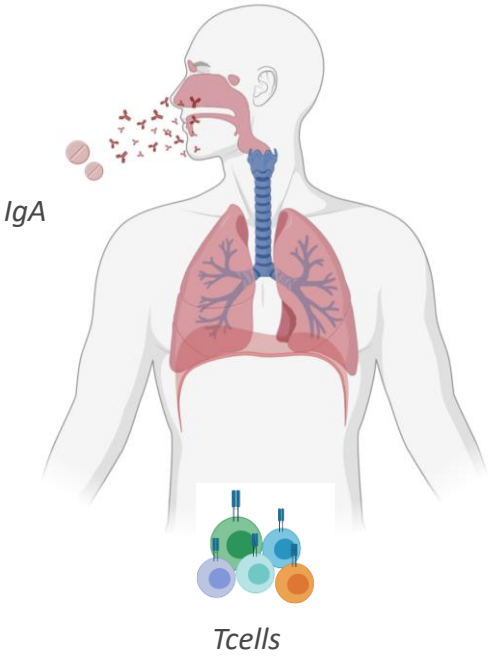
Vaccine Development

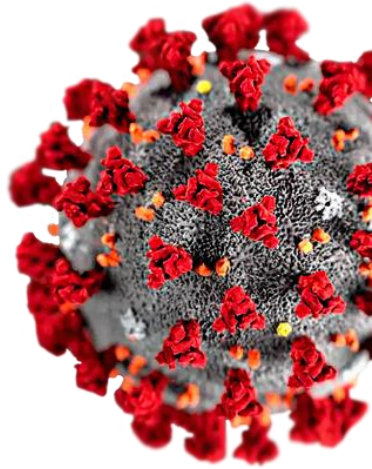
Distribution & Administration

We are currently chasing the virus with vaccines like a hamster on a wheel

Oral Tablet is different

- Cross-reactive immune responses which may lead to broader protection
- Tablets rather than injections



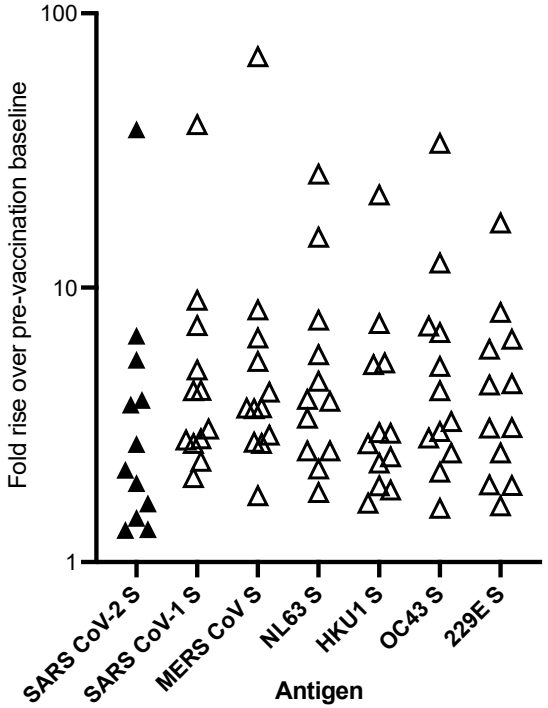


VXA-CoV2-1 Induces Cross-reactive And Long-Lasting Nasal IgA

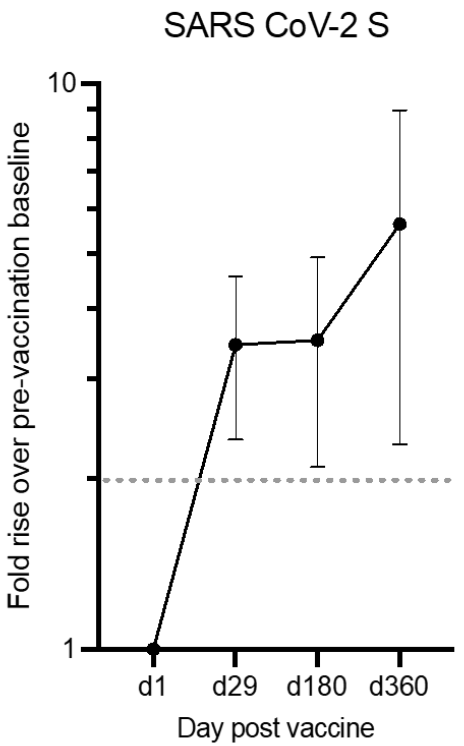
- 46% of subjects had a 1.5 fold increase or better against SARS-CoV2-S which also induced increased antibody responses to every Coronavirus tested

Nasal IgA responses *highly cross reactive against all coronaviruses*

Cross Reactivity



Longevity

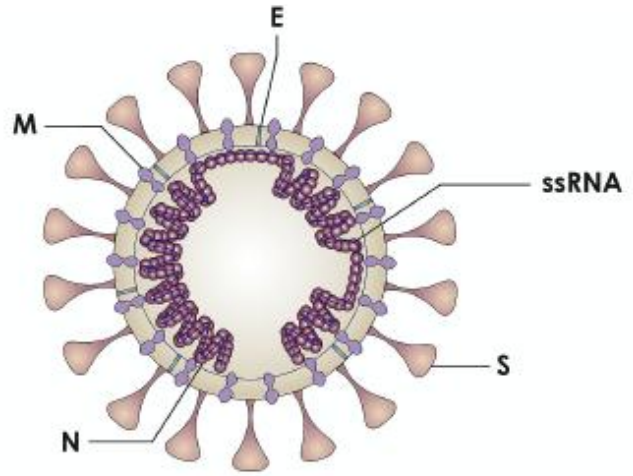


Langel, et al, Sci Translation Medicine, 2022

COVID-19 Vaccine Candidates In Humans

VXA-CoV2-1 (Expresses S+ N): phase I study

- Highly immunogenic on eliciting T cells and mucosal IgA
- **Made cross-reactive mucosal IgA**



VXA-CoV2-1.1-S (Expresses only S): phase II study

- Much higher serum antibody responses than the S&N version
- Boosted the mRNA vaccines
- **Made cross-reactive mucosal IgA**

VXA-CoV2-3.1 and VXA-CoV2-3.3 (Expresses only S): phase IIb study

- Comparative efficacy vs. mRNA
- Study In progress

vaxart.com