

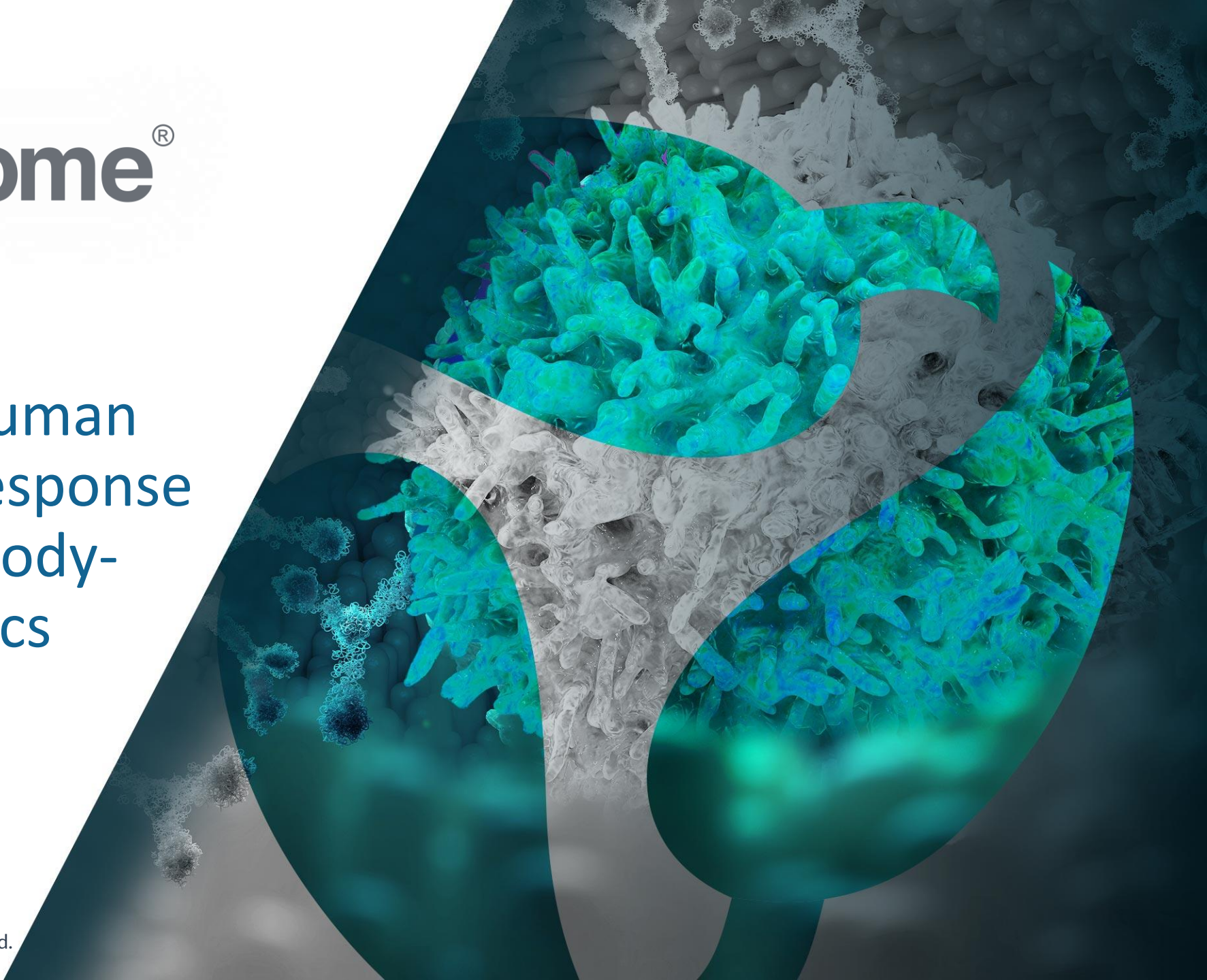


Harnessing the Human Memory B Cell Response To Develop Antibody- Based Therapeutics

September 21, 2021

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We may make statements about estimated dates for milestones related to our programs. Estimates involve risks and uncertainties and are subject to change based on various factors and evolution over time.

In this presentation and oral commentary, we may discuss our current and potential future product candidates that have not yet undergone clinical trials or been approved for marketing by the U.S. Food and Drug Administration or other governmental authority. No representation is made as to the safety or effectiveness of these current or potential future product candidates for the use for which such product candidates are being studied. This presentation does not constitute an offering of securities of any kind.

Experienced Management Team



Purnanand Sarma, PhD
President & CEO

Former CEO of Taris Biomedical
Sold to Johnson & Johnson in 2019



Corleen Roche
Chief Financial Officer

Former US CFO Biogen
Former CFO, Global Vaccines, Wyeth/Pfizer



Dennis Giesing, PhD
Chief Development Officer

Former CSO at Taris Biomedical
Led BARDA funded pandemic flu program at MediVector



Sandra Stoneman, Esq.
Chief Legal Officer

Former Partner at Duane Morris
Life Sciences practice group leader



Mike Morin, PhD
Chief Scientist

Oversaw cancer, immunology and anti-bacterial
drug discovery at Pfizer



Matthew Robinson, PhD
SVP, Research & Development

Antibody Structure Function Expert
formerly at Fox Chase Cancer Center





Immunome “At A Glance”

Proprietary Discovery Engine

Rapid, Unbiased Interrogation
of Patient Memory B Cells

Applicable Across Multiple
Therapeutic Areas

ADVANCING CLINICAL PROGRAMS

IMM-BCP-01 Treatment of COVID-19

- Three antibody cocktail
- Binds to three non-overlapping regions of the spike protein
- ACE2 and Non ACE2 dependent neutralization
- Potent Effector Function – potential for viral clearance

*IND Submission Q4 2021
Topline Data H1 2022*

IMM-ONC-01 Treatment of Solid Tumors: Targeting IL-38

- Reverses IL-38 induced dampening of anti-tumor immunity
- IL38 is a novel innate immune checkpoint
- Potential indications include Lung, Head & Neck, Melanoma

IND submission Q1 2022


ROBUST PIPELINE


- Multiple target rich areas of cancer biology
 - Membrane Dynamics/Exosomes
 - Antibody Drug Conjugates (ADCs)
- Anti-infectives
 - Rapid Response to new infections/outbreaks

*Potential for multiple
new programs and
partnerships*

Immunome Development Pipeline and Anticipated Key Milestones



ANTI-INFECTIVES	TARGET	PRODUCT CANDIDATE DESCRIPTION	DISCOVERY	PRECLINICAL	ANTICIPATED MILESTONE
IMM-BCP-01	Three SARS-CoV-2 Epitopes	Three antibody cocktail	 A blue horizontal bar with a right-pointing arrowhead, spanning the width of the Discovery and Preclinical columns.		IND filing Q4 2021

ONCOLOGY	TARGET	PRODUCT CANDIDATE DESCRIPTION	DISCOVERY	PRECLINICAL	ANTICIPATED MILESTONE
IMM-ONC-01	IL-38	Anti IL-38 antibody	 A dark blue horizontal bar with a right-pointing arrowhead, spanning the width of the Discovery and Preclinical columns.		IND filing Q1 2022

Proprietary Discovery Engine

Memory B cells: The Most
Educated Components of
Human Immune System

We see Disease Through the
Lens of a B cell

Patient Sampling

Ongoing access to new and diverse
patient memory B cells to feed the
engine

Patient Response

Capture memory B cells from
cancer or infectious disease
patients

Antibody Screening

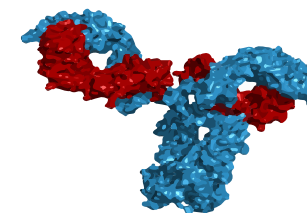
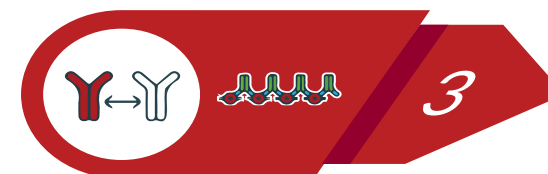
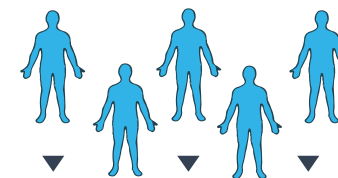
Deep, multiplexed interrogation of
patient memory B cell responses

Antibody Validation

Definitive target identification and
characterization of antibody - target
interactions

Therapeutic Output

Unique therapeutic antibody - target pairs



Infectious Diseases



Collaboration with U.S. DoD
awarded up to \$17.6M in funding

COVID - Summary



Current COVID Vaccines and Antibody Therapeutics Not Sufficient

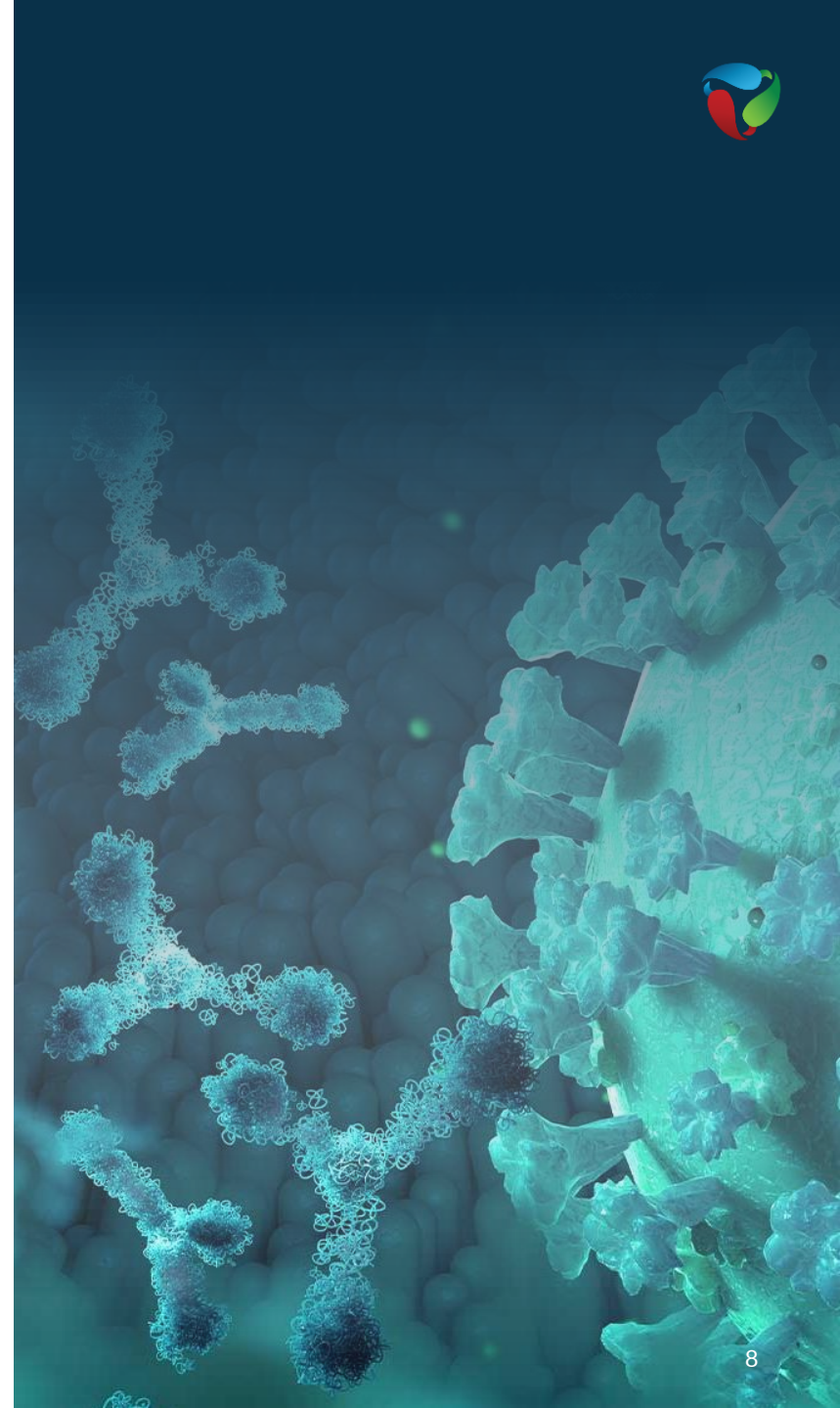
- Breakthrough infections despite vaccine use¹
- FDA Emergency Use Authorization of antibody therapeutics for treatment of mild to moderate COVID-19²
- First-generation antibody therapeutics developed based on virus neutralization to treat COVID-19³

IMM-BCP-01 Preclinical Testing Shows Potential to Change Standard of Care

- Three antibody cocktail with multi-modal action
 - » Strong viral neutralization and clearance *in vitro*
 - » Retains potency against key mutations, and all present CDC variants of concern (VOCs)
 - » Preclinical potency suggests potential for non-intravenous dosing in humans
 - » IND submission patient dosing anticipated in Q4 2021. Topline data in H1 2022.

~\$10BN addressable COVID antibody market (U.S. and EU)

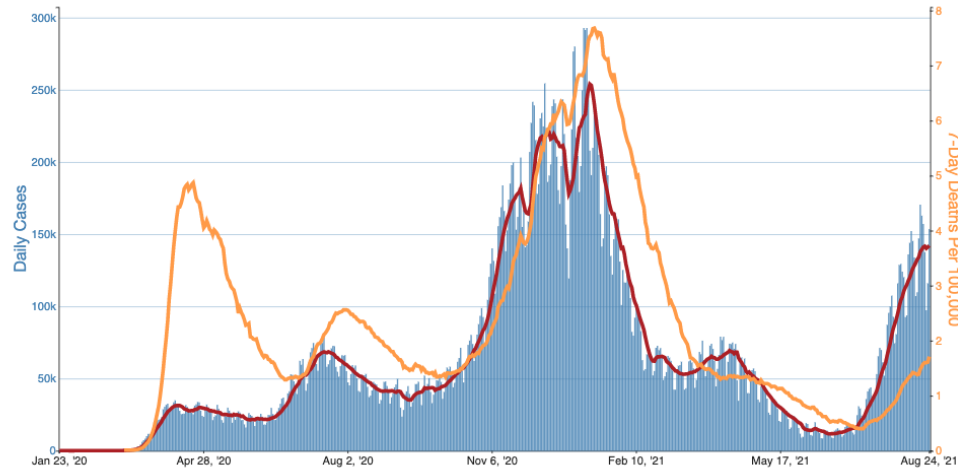
1. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/effectiveness/why-measure-effectiveness/breakthrough-cases.html>
2. <https://www.fda.gov/emergency-preparedness-and-response/mcm-legal-regulatory-and-policy-framework/emergency-use-authorization#coviddrugs>
3. Hansen et al <https://www.science.org/doi/epdf/10.1126/science.abd0827> ; Jones et al DOI: [10.1126/scitranslmed.abf1906](https://doi.org/10.1126/scitranslmed.abf1906)



COVID-19 Vaccines Are Effective, But Not Sufficient



Daily Trends in Number of Cases and 7-Day Cumulative Incidence Rate of COVID-19 Deaths in The United States Reported to CDC, per 100,000 population.

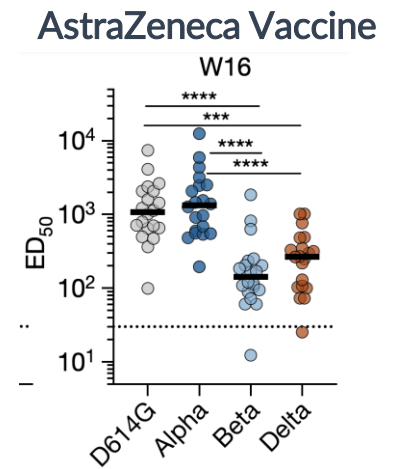
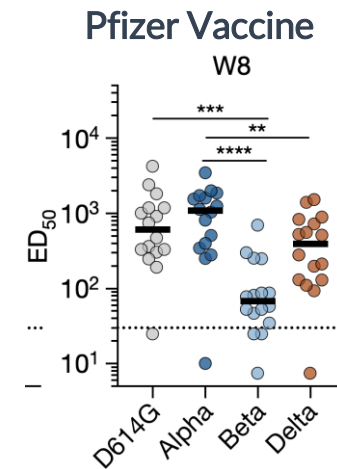


CDC Website Statistics (8/30/2021)

- 173.8M people fully vaccinated
 - » 52.4% fully vaccinated (61.3% of population >12)
- However new variants driving resurgence of cases and deaths

Resistant Variants

- Vaccines targeting original strain elicit reduced levels of antibodies capable of neutralizing emerging variants¹
 - » VOCs evading antibodies against immunodominant epitopes
- Infections rising in Western countries despite high vaccination rates due to Delta variant



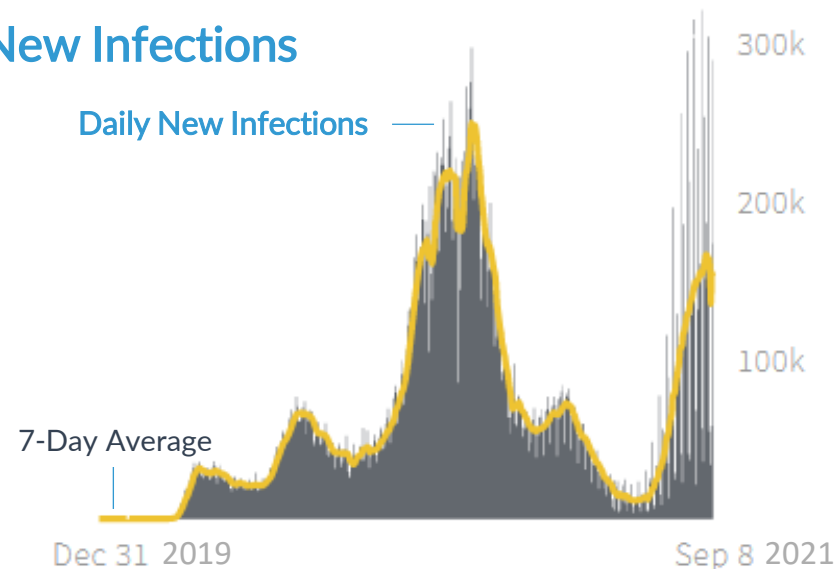
ED50 = Neutralization titer

Planas et al Nature 596, 276-280 (2021) <https://doi.org/10.1038/s41586-021-03777-9>

U.S. COVID Surge Continues to Lead to Severe Disease



New Infections

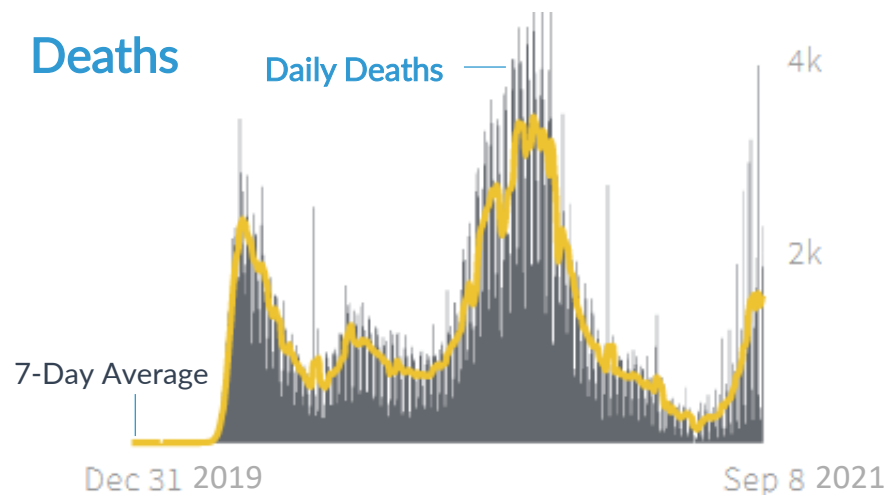


COVID Surges Despite >50% of U.S. Fully Vaccinated

- » Approximately 1,500 deaths per day
- » Cases driven by:
 - Vaccinated but high risk:
 - Elderly
 - Underlying conditions
 - Immunocompromised
 - Unvaccinated

Emerging Variants
Driving
Resurgence in
Infection Rates
and Deaths

Deaths

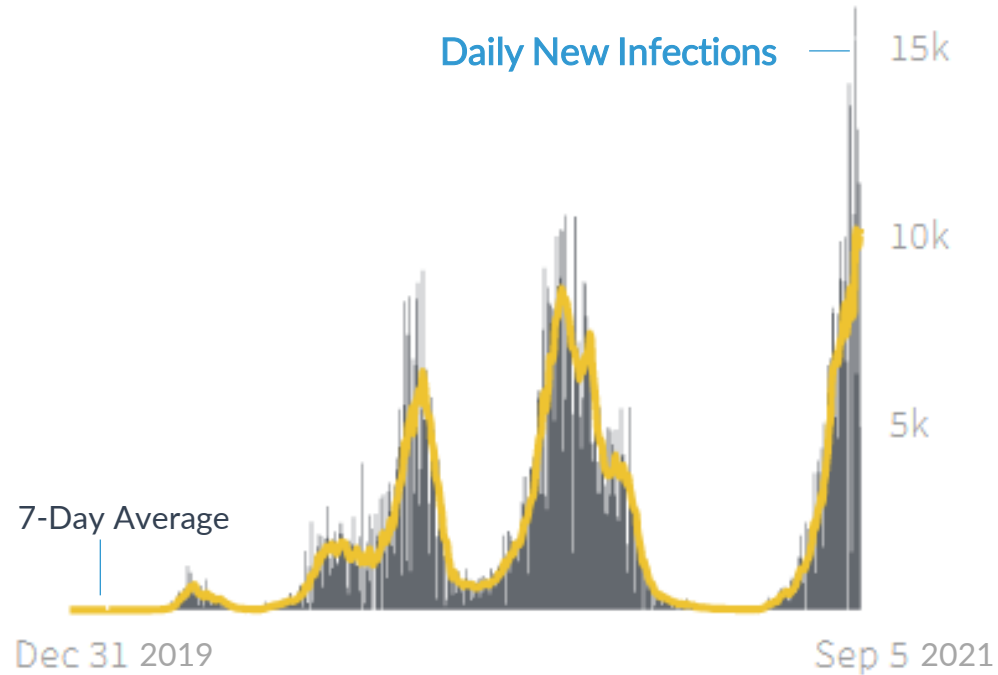


Israel Surging Despite Highest COVID-19 Vaccination Rate in the World



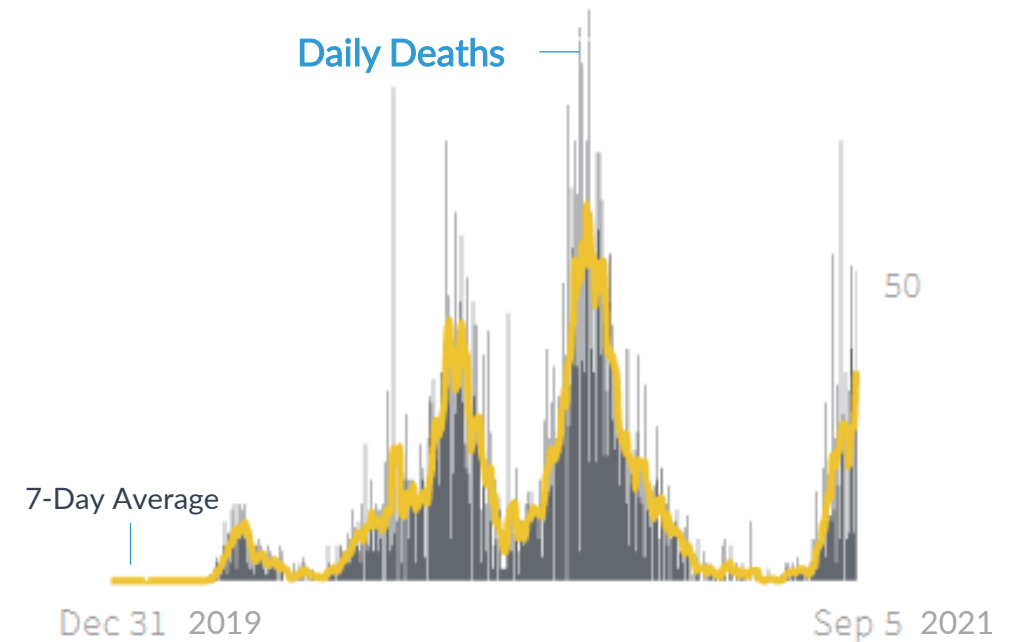
COVID-19 Will Likely Remain Endemic & Specific Populations Will Continue to be at Risk

New Infections



Source: www.ourworldindata.org

Deaths



Source: www.ourworldindata.org

COVID-19 Therapeutics Will Remain Critical



Variants will likely continue to emerge, and may rapidly change the landscape

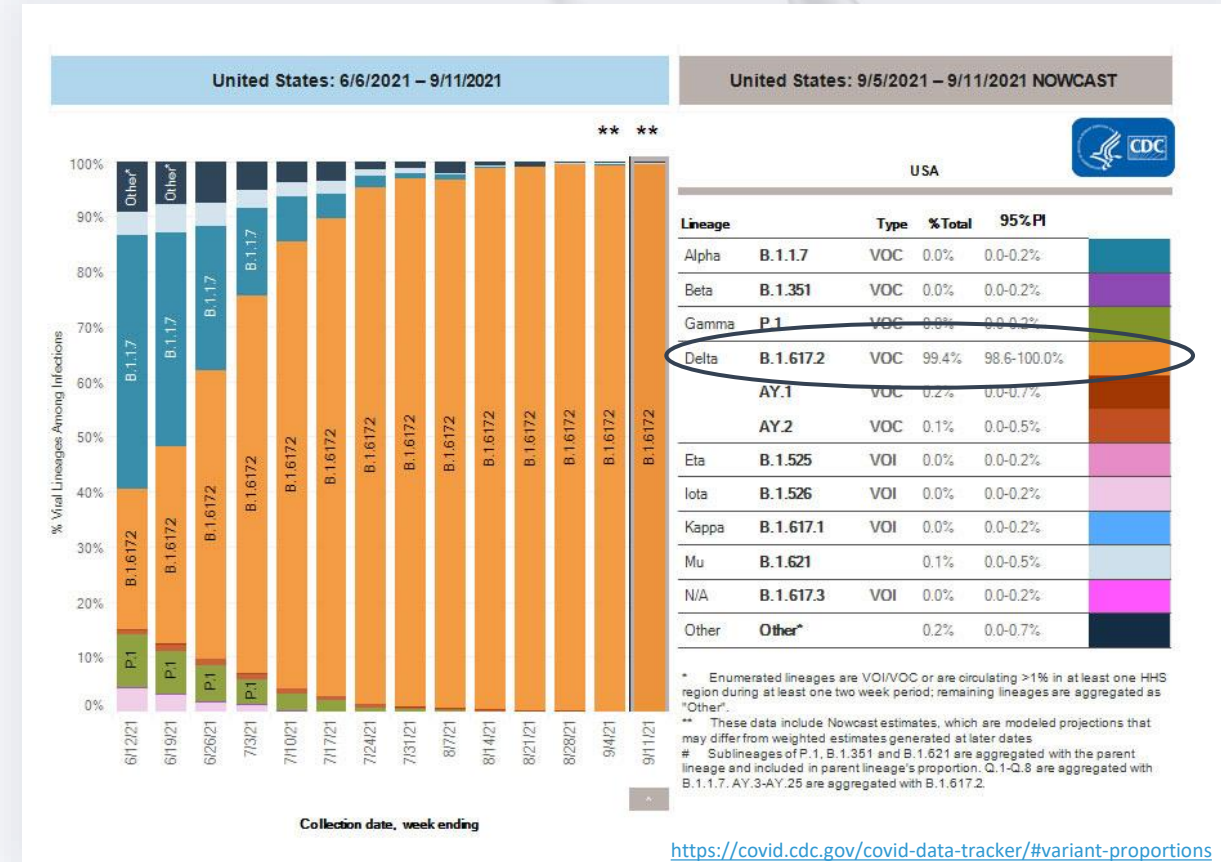
- » Delta variant encompasses >99% of all U.S. cases since discovery in April '21
- » Eta, Iota, Kappa, and Lambda variants are a growing concern

Evidence of decreased vaccine coverage against variants







- » Increased breakthrough infection rates and transmission

Large populations will likely need therapeutic intervention

- » Unvaccinated population
- » High risk patients who do not derive benefit from vaccines
 - ~3% (9M) of U.S. population *Immunocompromised*
- » Vaccinated patients with breakthrough infections



Three Antibody Cocktail has Multiple Points of Attack and Multiple Mechanisms of Action

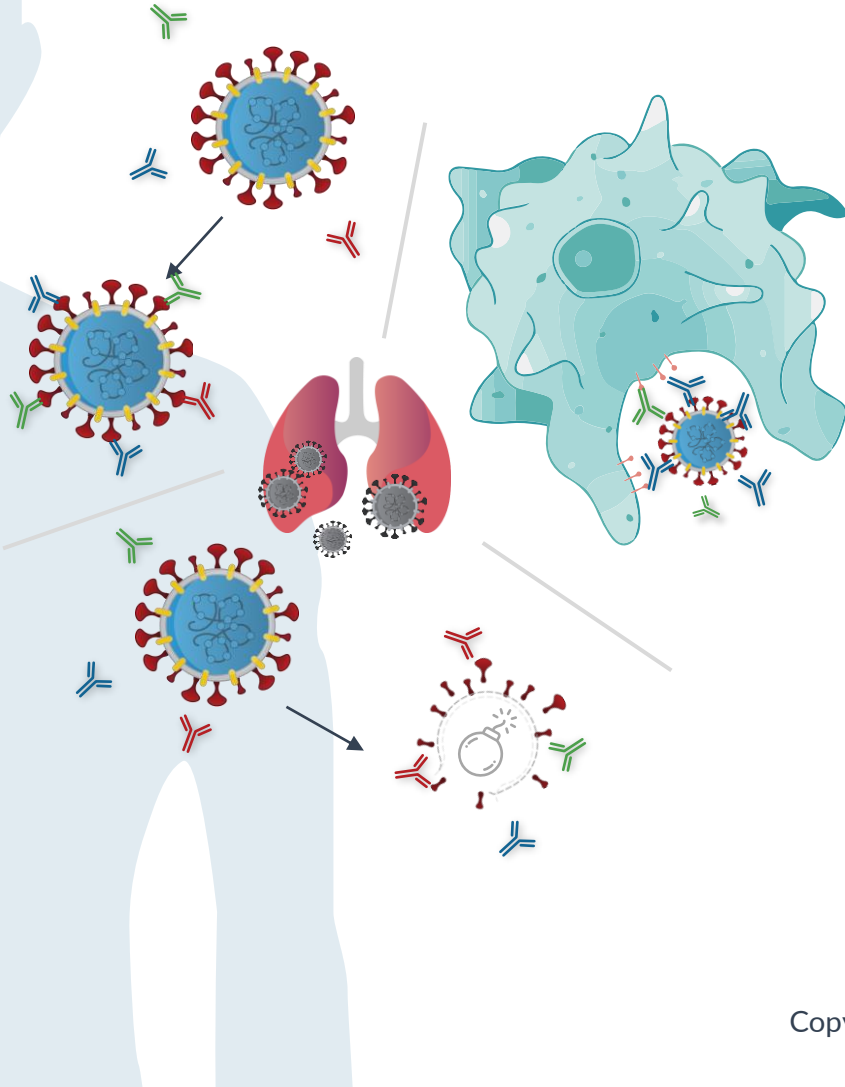
	 IMM-BCP-01	 REGENERON	 Lilly	 AstraZeneca	 VIRgsk	
	IMM-BCP-01	Regen-CoV	Bamlanivimab & Etesevimab	AZD7442	Sotrovimab	ADG20
ACE2 Dependent Neutralization	✓✓	✓✓	✓✓	✓✓		✓
Non ACE2 Dependent Neutralization	✓				✓	
Viral Clearance	✓✓✓	✓	✓		✓	✓
<i>In vivo</i> Potency	✓✓	✓	✓	✓	✓	✓

Despite Limitations, First Generation Antibodies Commercially Successful

- » Some engineered out ability to induce viral clearance
- » FDA approval for treatment of mild to moderate COVID-19
- » Susceptible to viral escape, Lilly antibody temporarily withdrawn
- » Plateau of clinical benefit with escalated dose

Based on our current beliefs/opinions about selected publicly available preclinical data for other products and programs relative to IMM-BCP-01

Immunome's Approach Optimized for Ideal Target Profile



Broad Activity Across Variants

- Three antibodies directed at non-overlapping/ conserved epitopes provide broad coverage



Unique Multimodal MOA

- Preclinical evidence of ACE dependent and non-dependent action; three different epitopes. Synergy against variants of concern. Clearance by phagocytosis and complement fixation



Potent *In Vivo* Activity

- Potent reduction in lung viral load in SARS-CoV-2 infected hamsters



Easy to Use

- Preclinical potency suggests efficacious dose may allow for non-Intravenous dosing

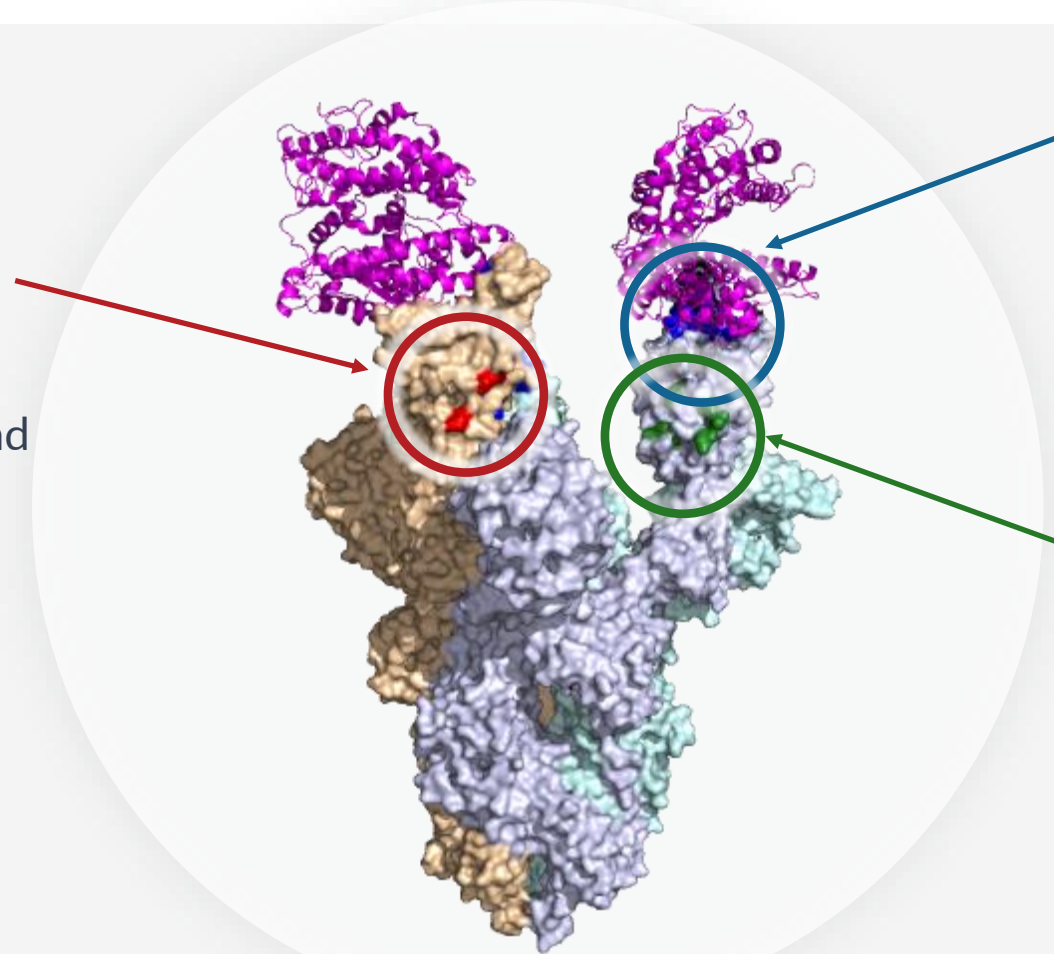
IMM-BCP-01: Mimics the Body's Natural Response



Leverages Unique and Cryptic Epitopes

EPITOPE 1: IMM20253 (Non-ACE2 Dependent)

- Broadly conserved across all SARS-CoV-2 strains and other Beta coronaviruses
- Novel mechanism. Antibody exhibits non ACE2 dependent neutralization



EPITOPE 3: IMM20190 (ACE2 Dependent)

- Antibody is a potent ACE2 competitor
- A composite epitope involving the receptor binding ridge and an area adjacent to the receptor binding loop

EPITOPE 2: IMM20184 (ACE2 Dependent)

- Broadly conserved epitope across SARS-CoV-2 strains
- Antibody exhibits an avidity-based binding mechanism

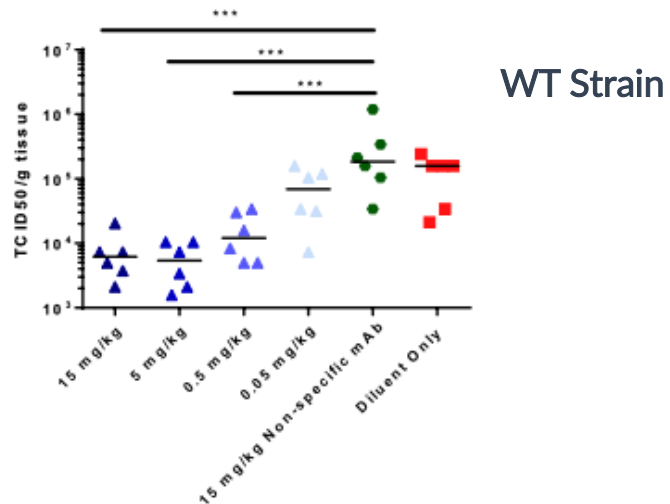
Three antibody cocktail exhibits potent synergy

Superior Preclinical Efficacy and Prophylactic Dose Response vs Sotrovimab



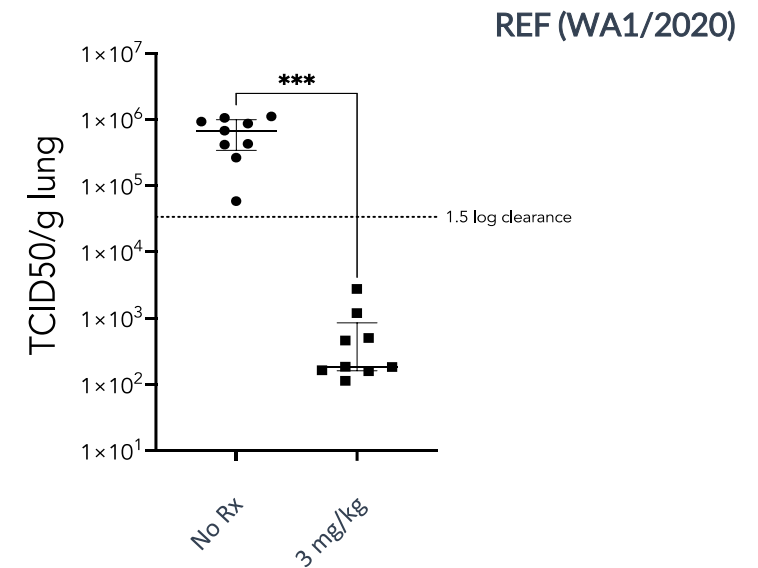
Sotrovimab (EUA Approved at 500 mg Dose)

- Prophylactic setting (Day -2) in infected hamsters
- ~ 1.5-log clearance at 5mg/kg
- Dose response, however, appears to plateau at 5 mg/kg
 - Increasing to 15 mg/kg does not provide better efficacy



IMM-BCP-01

- Treatment setting in infected hamsters
- ~3 log clearance at 3 mg/kg
- Preclinical potency suggests potential for non-intravenous dosing in humans



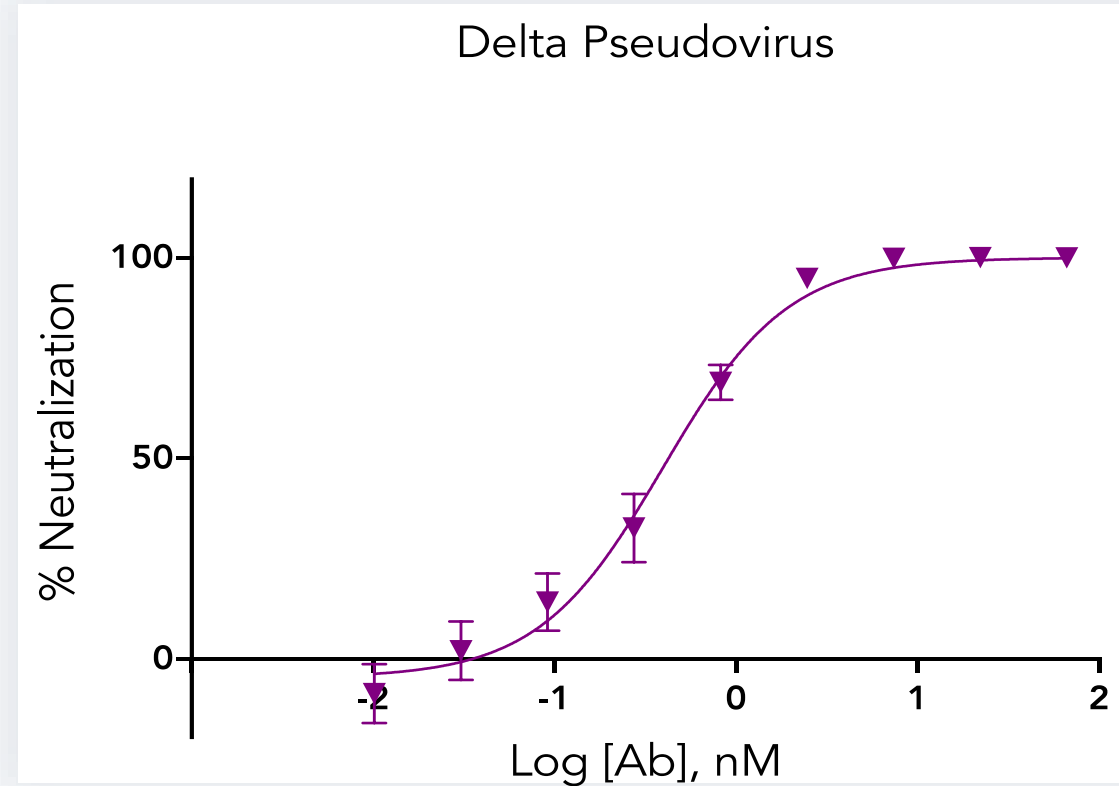
IMM-BCP-01 Neutralizes all CDC Variants of Concern in Pseudovirus Testing



Neutralization Across Multiple Variants

- Alpha, Beta, Gamma, Delta
 - » CDC Variants of Concern (as of 09/20/2021)
- Emerging Variants
 - » Delta Plus, Lambda
- US and European reference strains, USA-WA1/2020 and BavPat1/2020
- Activity maintained over 20 single point and complex mutations

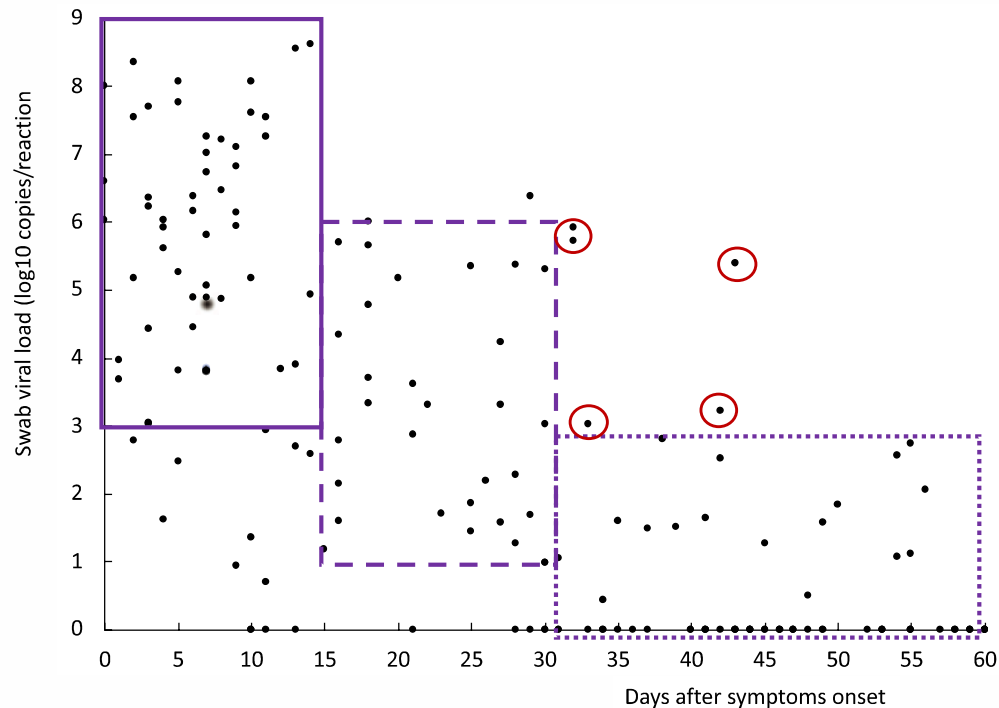
Potent Neutralization of Delta Variant (B.1.617.2)



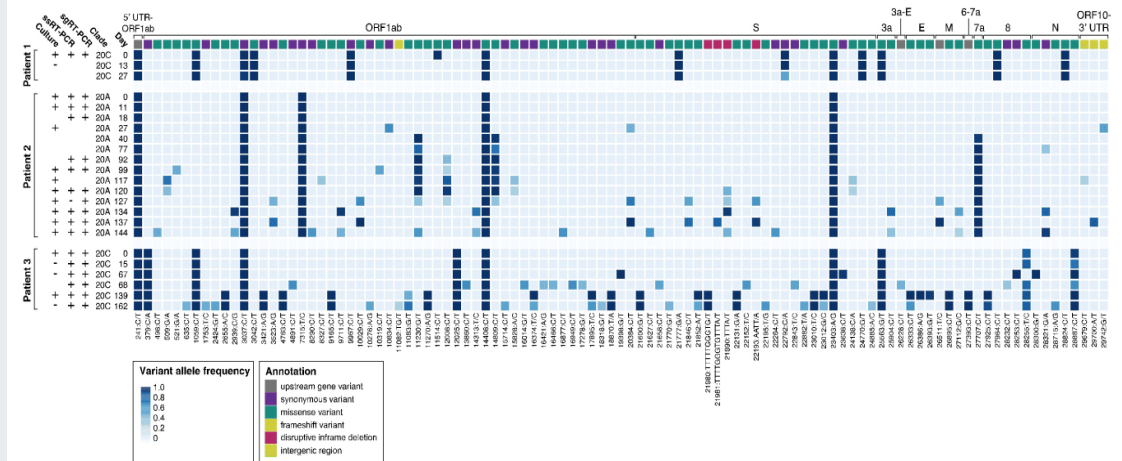
Viral Clearance is Important, Especially in Immunocompromised Patients



Immunocompromised patients exhibit prolonged viral load

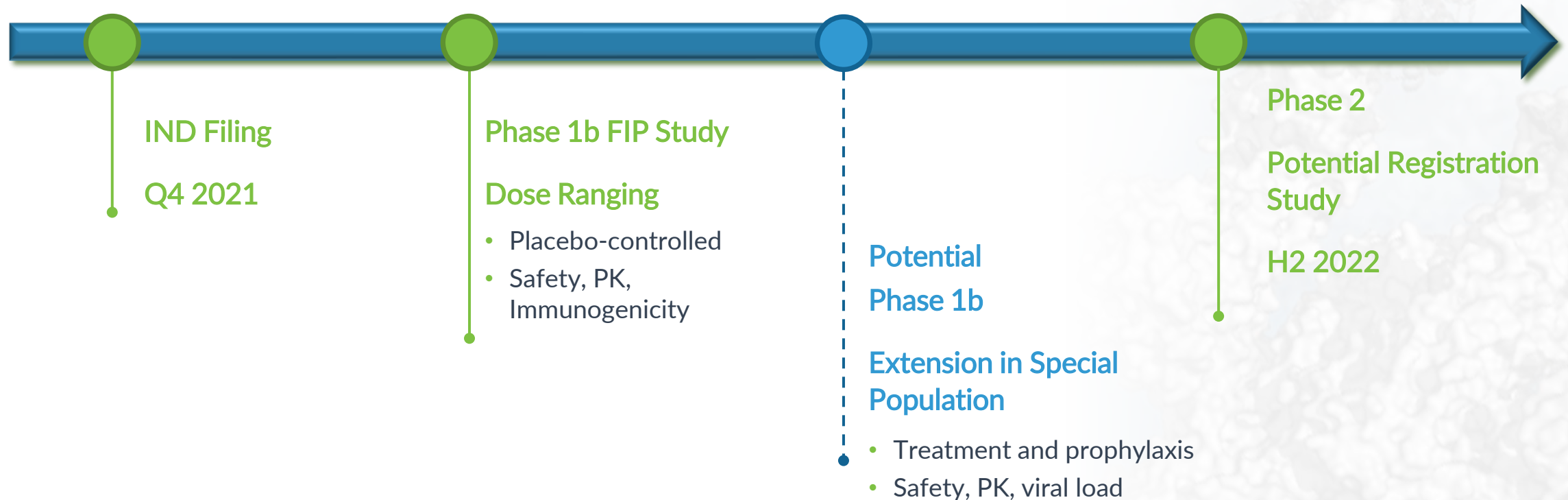


Prolonged infection leads to emerging resistant variants



Caillard, S., Benotmane, I., Vargas, G. G., Perrin, P., & Fafi-Kremer, S. (2021). SARS-CoV-2 viral dynamics in immunocompromised patients. *American Journal of Transplantation*, 21(4), 1667–1669.
<https://doi.org/10.1111/ajt.16353>

IMM-BCP-01 Clinical Development Plan



COVID Antibody Market

REGENERON

\$2.6B

IN 2Q 2021

ADAGIO

\$3-4B

ANALYST PROJECTED
PEAK SALES *

GSK/VIR

**EU Commission
220K Doses**

~\$10B
**COVID Antibody
Market**



Addressable Patients

- High Risk Vaccinated Patients with Breakthrough Infection
- High Risk Unvaccinated Patients
- Immunocompromised Patients (~9M in the US), Including:
 - » Transplant
 - » HIV
 - » Chemotherapy
- Additional High Risk Patients, Including:
 - » Diabetes
 - » >65 years of age
 - » Cerebrovascular disease
 - » Chronic kidney disease
 - » COPD/Lung diseases Pregnancy and Recent Pregnancy

Oncology



Oncology - Summary

Highly disruptive platform discovering novel targets based on function-based interrogation of patient memory B-cell response to tumors

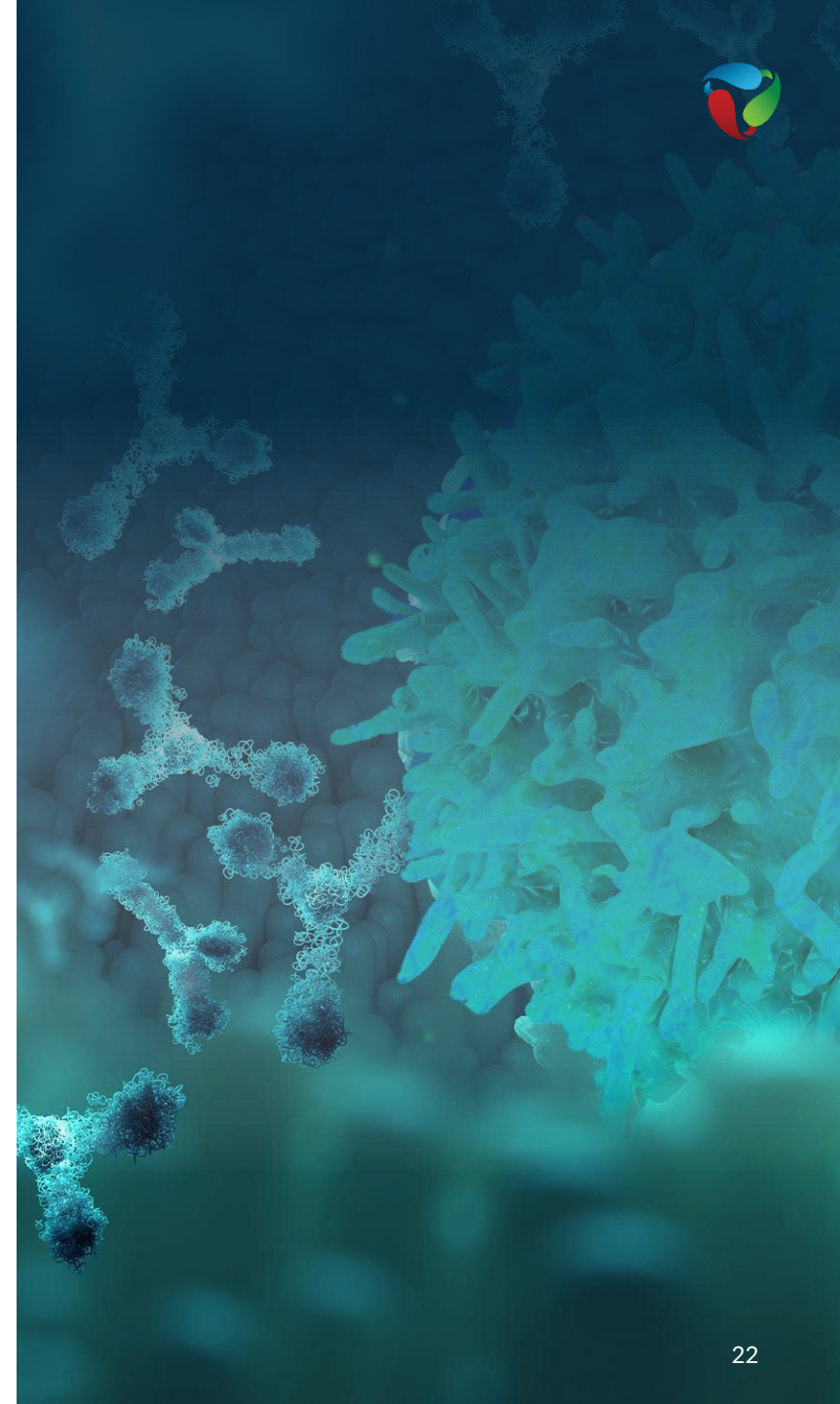
- Broad, deep and unbiased interrogation
- Operating at industrial scale; ~1300 hits, >50 novel targets/antibodies to-date
- Platform highlighting disease relevant functional clusters

IND filing for lead program (IMM-ONC-01) expected Q1 2022

- Targets IL-38 a novel, innate immune checkpoint which dampens anti-tumor immunity
- Preclinical data validates mechanism; pre-clinical efficacy demonstrated as a single agent
- High expression observed in multiple cancers, notably head & neck, lung and melanoma

Rich Pipeline with potential for proprietary and partnership opportunities in research/lead development stage

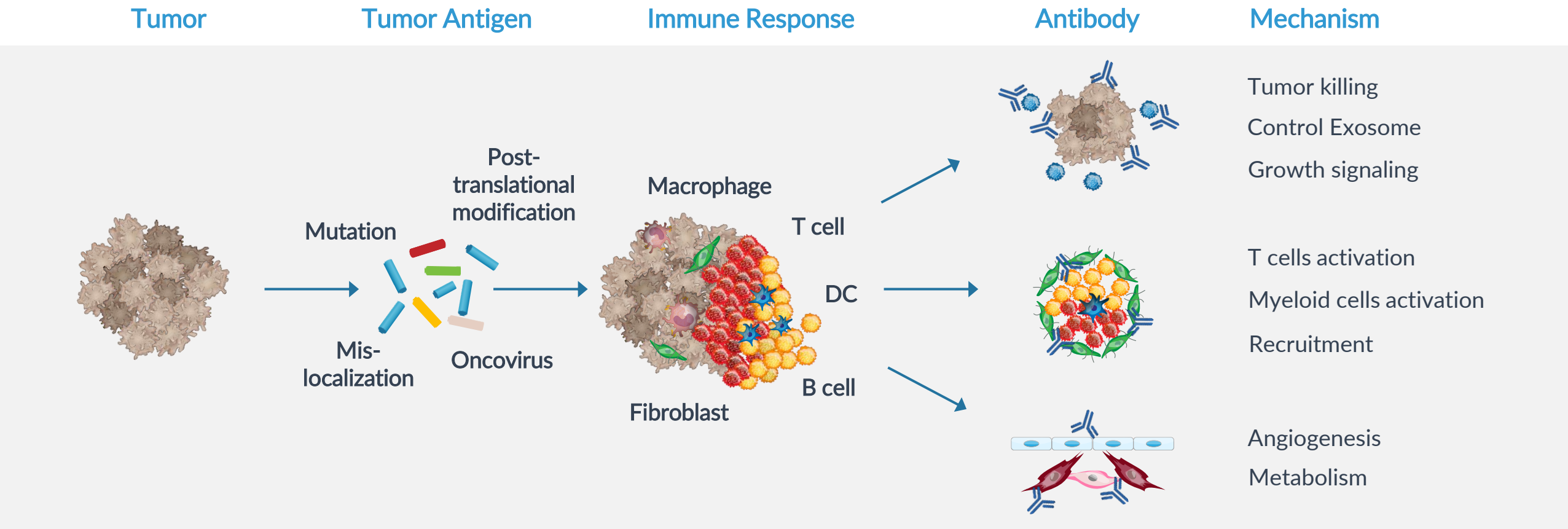
- Novel targets with potential to enable multiple ADC opportunities
- Target rich areas of novel cancer biology (e.g. exosome targeting)



Novel Targets



Antibodies From Patient Memory B-cells Can Reveal Novel Therapeutic Targets





Novel Insights from Discovery Engine

Systematic Mining of Antibodies Reveal Disease Relevant Functional Clusters

A Highly Productive Platform

300,000

HYBRIDOMAS

1,300

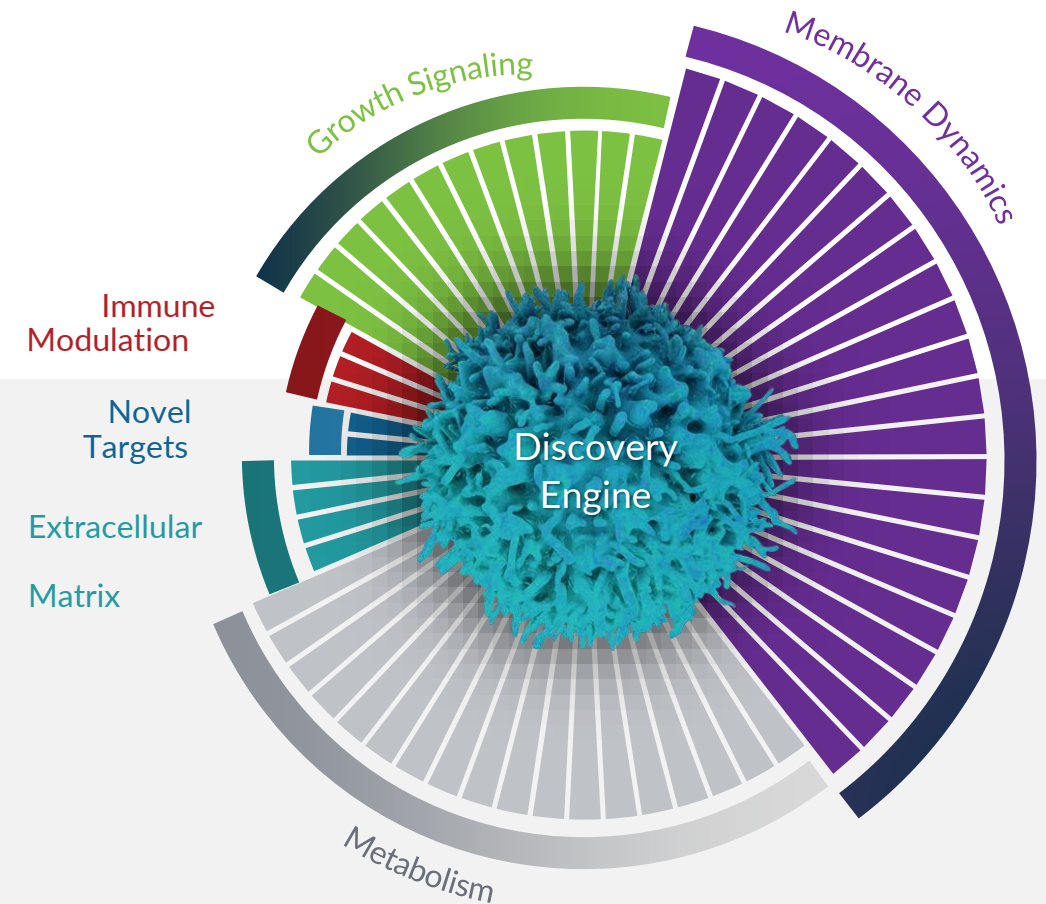
HITS

>50

ANTIBODY /
ANTIGEN PAIRS³

Provides Critical Insights Into Cancer Biology Such As:

- Membrane dynamics
- Exosome control of the tumor microenvironment¹⁻²
- Novel immune checkpoints that serve as functional, tumor-derived inhibitors of immunity



1. Adv Clin Chem. 2016;74:103-41.DOI: 10.1016/bs.acc.2015.12.005
2. Mol Cancer. 2019 Oct 23;18(1):146. doi: 10.1186/s12943-019-1074-3
3. Including some commercially-validated targets such as ERBB2

Immunome Oncology R&D Pipeline



Targets Identified From Patient Antibodies

Program	Novel Immune Modulators	Potential Cancers of Relevance	Stage/Format
IMM-ONC-01 (Anti-IL-38)	Neutralize apoptotic tumor cells derived IL-38; recruit and activate immune cells	Lung, head and neck, melanoma, and prostate	Development / mAb



Program	Membrane Dynamics, Exosomes	Potential Cancers of Relevance	Stage/Format
IMM20059	Block PD-L1 on exosomes expressing novel target; reactivate exhausted anti-tumor T cells	PD-L1 resistant melanoma and prostate	Lead ID / Bi-specific



Program	Tumor Targeting	Potential Cancers of Relevance	Stage
IMM20326	Direct killing of tumors expressing target on surface	Chemoresistant HCC, NSCLC and ovarian	Lead ID / ADC



IMM20065	Direct killing of tumors expressing target on surface	Lung, cervical, CRC, breast	Research / ADC
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IL-38: A Novel Oncology Target

IL-38 Dampens Innate Anti-Tumor Immunity

IL-38

AGONISTS

IL36 α
IL36 β
IL36 γ

ANTAGONISTS

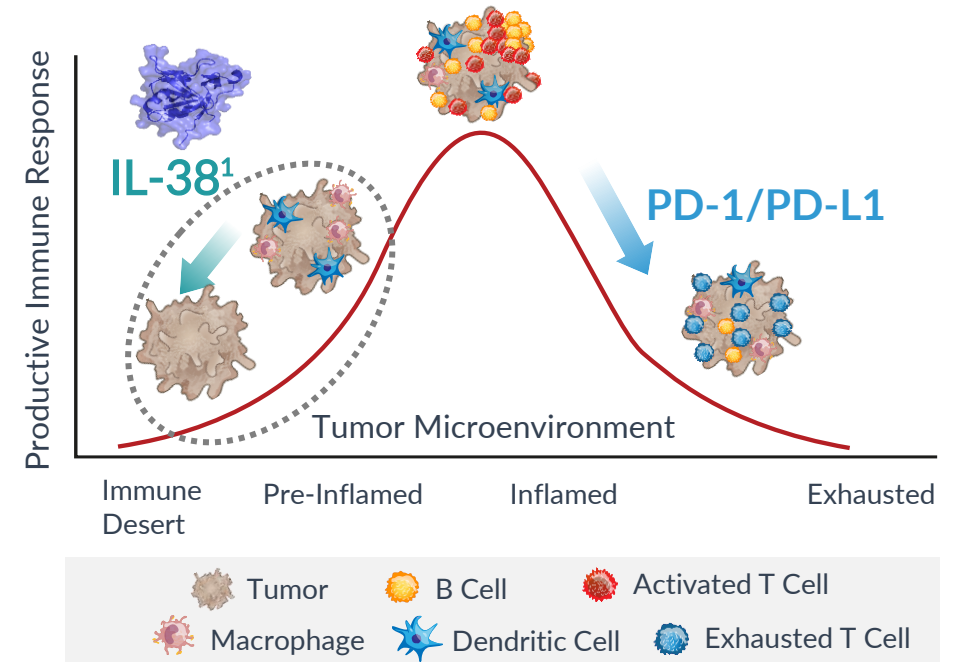
IL36Ra
IL38

Autoimmunity

Immune
Suppression

- IL-38 is an IL-1 cytokine family member, but most closely resembles the natural antagonists of the family (IL-1Ra and IL-36a)

Typical Inflammatory Anti-tumor Response



- IL-38 inhibits infiltration & pro-inflammatory activity of innate immune cells (e.g., M Φ , $\gamma\delta$ T cells, DCs)
- IL-38 inhibits innate immune responses by dendritic cell precursors, macrophages

Clinical Consequences of IL-38 Expression

Potential for IL-38 Combination Studies with Existing Therapies

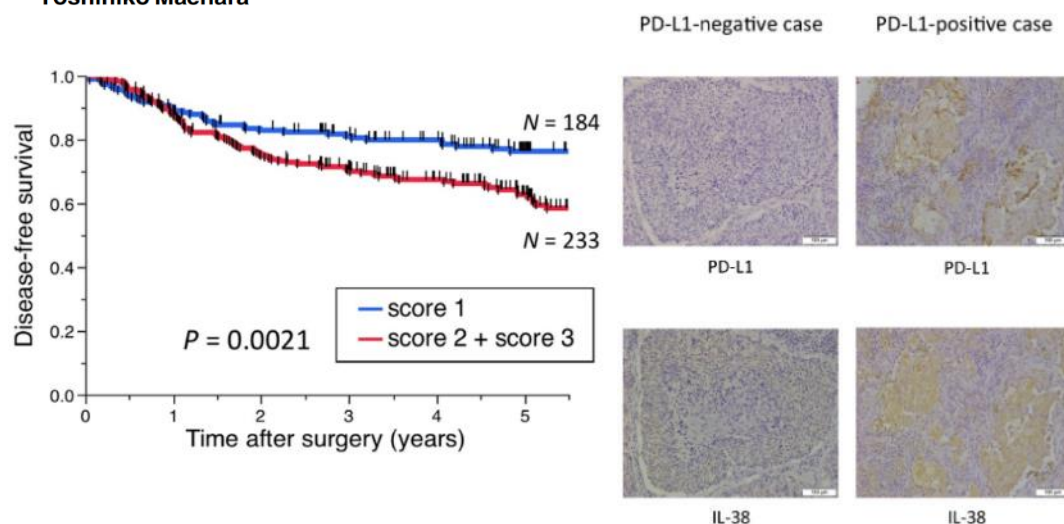


Inverse relationship between IL-38 expression and immune cell infiltration in tumors

RESEARCH ARTICLE

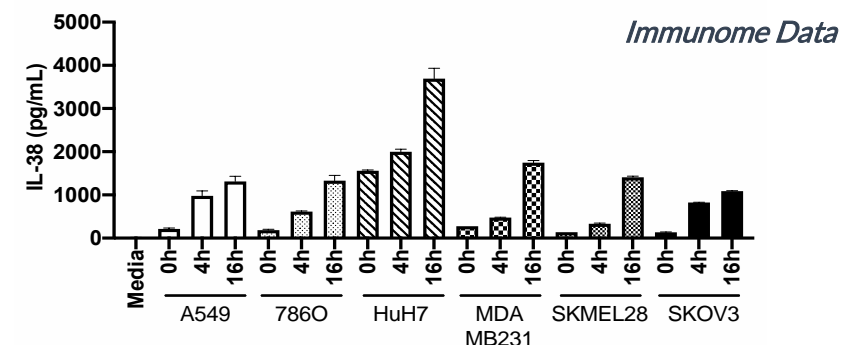
Clinical implications of the novel cytokine IL-38 expressed in lung adenocarcinoma: Possible association with PD-L1 expression

Kazuki Takada^{1,2}, Tatsuro Okamoto^{1*}, Masaki Tominaga³, Koji Teraishi¹, Takaki Akamine¹, Shinkichi Takamori¹, Masakazu Katsura¹, Gouji Toyokawa¹, Fumihiko Shoji¹, Masaki Okamoto³, Yoshinao Oda², Tomoaki Hoshino³, Yoshihiko Maehara¹



Tumor cells secrete IL-38 upon apoptosis induction

- IL-38 secretion associated with apoptotic cell death¹
- Acts during tissue damage to limit unwanted immune activation²
- Tumor cells secrete IL-38 during apoptosis *in vitro*



- Rational combination with chemotherapies that induce apoptosis in tumors

1. Mora et al, 2016. *J. Cell Mol. Cell Biol.* 2016;8 (5):426

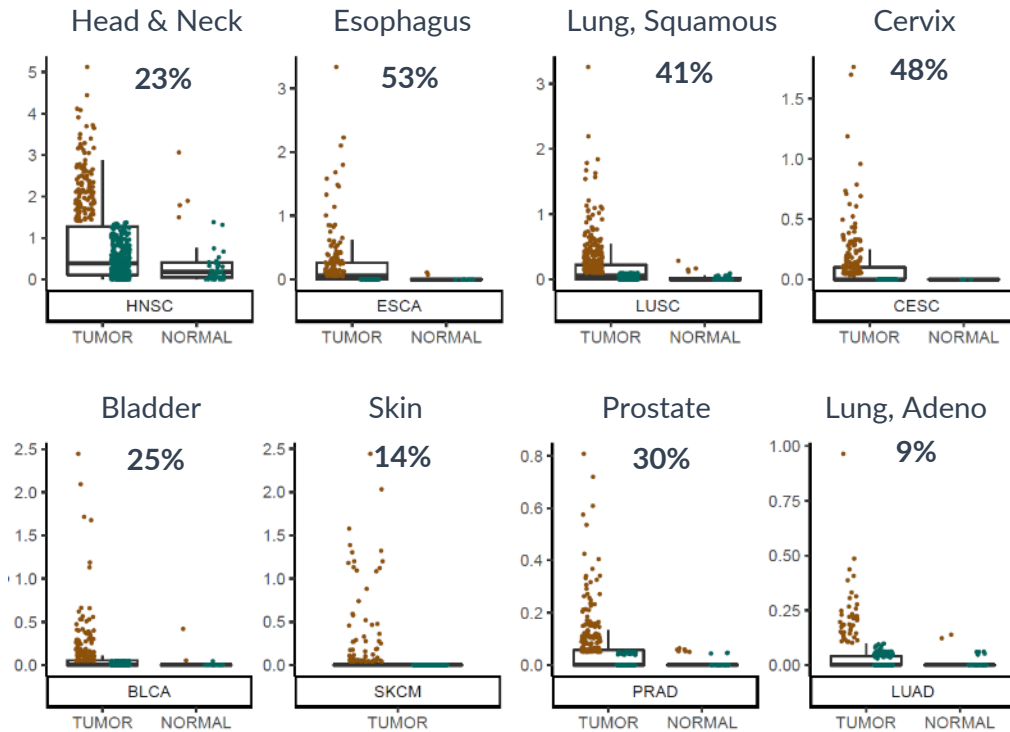
2. Wei et al. *J. Cell Mol. Med.* 2016;00 :1



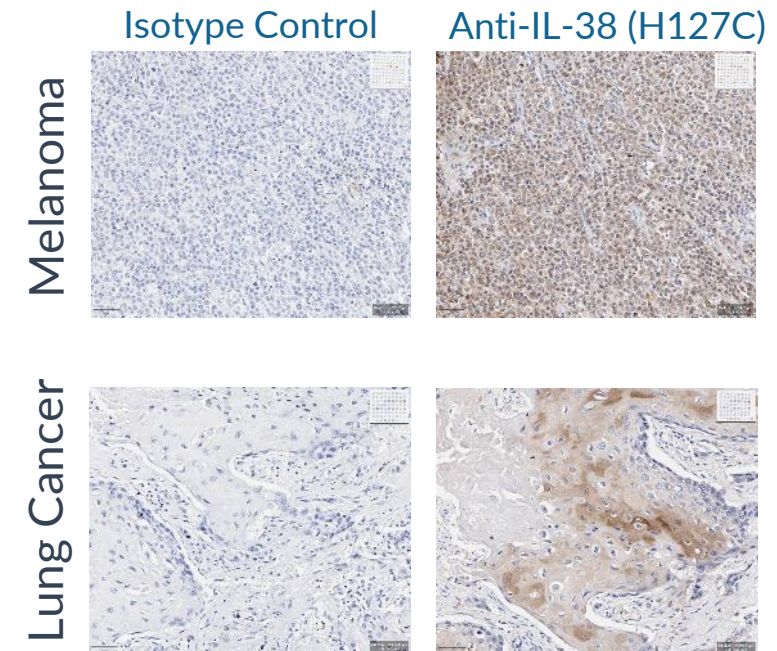
IL-38 Expression in Solid Tumors

IL-38 is expressed in Multiple Tumors of High Unmet Medical Need

IL-38 is Expressed in Multiple Tumors of High Unmet Medical Need



Immunome Data - IL-38 Expression in Primary Patient Tumors Confirmed by IHC



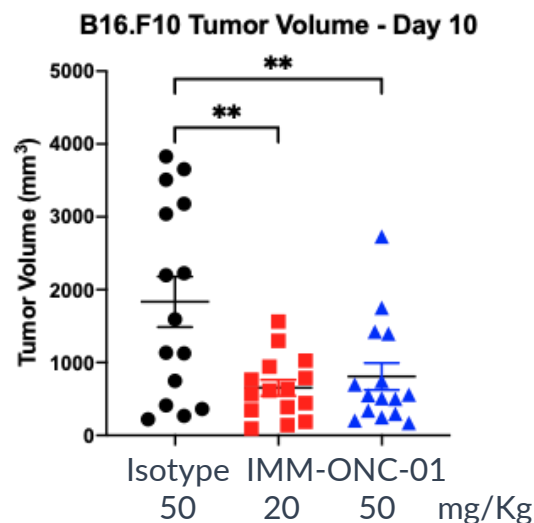
Immunome analysis of the Cancer Genome Atlas (TCGA) data from Firehouse Legacy dataset

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Blocking IL-38 Leads to Tumor Control in Two Different Tumor Models

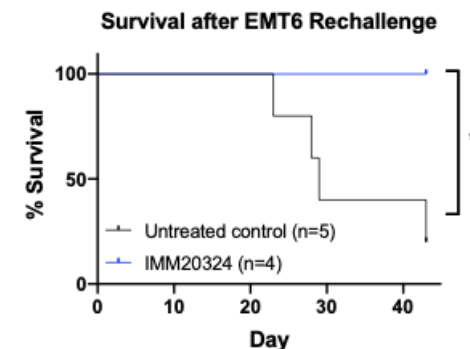
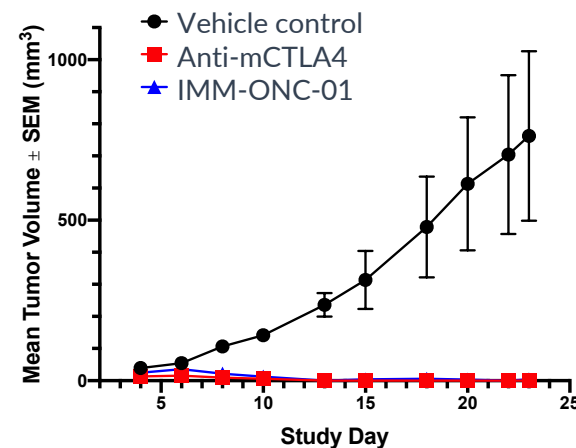
Demonstration of Anti-Tumor Activity (B16F10 Model)

- Immunologically cold tumor model
- IMM-ONC-01 equivalent to best in class I/O (anti-CTLA4) in this model



Induction of Anti-Tumor Memory (EMT6 Model)

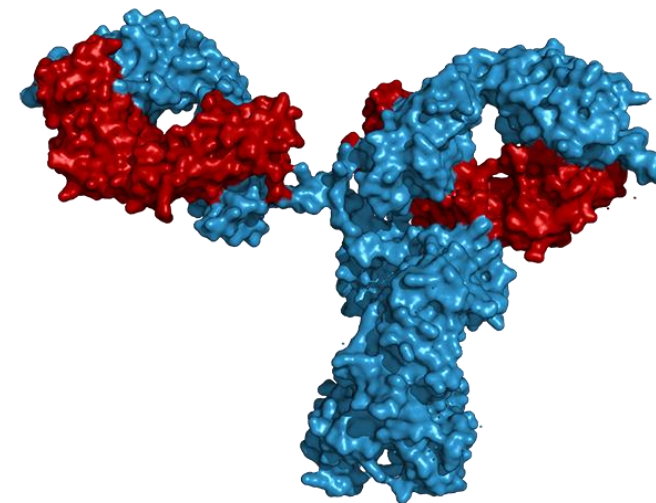
- ~40% response rate upon treatment with IMM-ONC-01
- Animals with complete cures resistant to tumor re-challenge
 - Strongly suggests immunological memory
 - Consistent with indirect effect on T cells





IMM-ONC-01 is a Novel Antibody Candidate Targeting IL-38

- IL-38 is a novel checkpoint in the innate immune system
- Targeting IL-38 using IMM-ONC-01 expected to boost anti-tumor immunity
- Preclinical research confirms the mechanism of action, and demonstrates efficacy, even as a monotherapy
 - » Potential indications include lung, head and neck, melanoma and prostate
- **IND filing anticipated in Q1 2022**



hulgG (PDB 1HZH)¹

1. Crystal Structure: Research Collaboratory for Structural Bioinformatics Protein Data Bank (rcsb.org): PDB 1HZH

Immunome “At A Glance”

Proprietary Discovery Engine

Rapid, Unbiased Interrogation
of Patient Memory B Cells

Applicable Across Multiple
Therapeutic Areas



ADVANCING CLINICAL PROGRAMS

IMM-BCP-01 Treatment of COVID-19

- Three antibody cocktail
- Binds to three non-overlapping regions of the spike protein
- ACE2 and Non ACE2 dependent neutralization
- Potent Effector Function – potential for viral clearance

*IND Submission Q4 2021
Topline Data H1 2022*

IMM-ONC-01 Treatment of Solid Tumors: Targeting IL-38

- Reverses IL-38 induced dampening of anti-tumor immunity
- IL-38 is a novel innate immune checkpoint
- Potential indications include Lung, Head & Neck, Melanoma

IND submission Q1 2022

ROBUST PIPELINE

- Multiple target rich areas of cancer biology
 - Membrane Dynamics/Exosomes
 - Antibody Drug Conjugates (ADCs)
- Anti-infectives
 - Rapid Response to new infections/outbreaks

*Potential for multiple
new programs and
partnerships*



Thank You

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