IMUNON

Harnessing the Power of the Immune System

Nasdaq: IMNN

R&D Day September 14, 2023

Corinne Le Goff, Pharm.D, M.B.A.
President & CEO IMUNON

Safe Harbor Statement

This presentation and any statements made during any presentation or meeting contain forward-looking statements related to Imunon, Inc. ("Imunon") under the safe harbor provisions of Section 21E of the Private Securities Litigation Reform Act of 1995 and are subject to risks and uncertainties that could cause actual results to differ materially from those projected. These statements may be identified by the use of forward-looking words such as "anticipate," "planned," "believe," "forecast," "expected," and "intend," among others. There are many factors that could cause actual events to differ materially from those indicated by such forward-looking statements. Such factors include, among other things, unforeseen changes in the course of research and development activities and in clinical trials; possible changes in cost, timing and progress of development, preclinical studies, regulatory submissions; Imunon's ability to obtain and maintain regulatory approval of any of its product candidates; possible changes in capital structure, future working capital needs and other financial items; changes in approaches to medical treatment; introduction of new products by others; success or failure of our current or future collaboration arrangements, possible acquisitions of other technologies, assets, or businesses; the ability to obtain additional funds for operations; the ability to obtain and maintain intellectual property protection for technologies and product candidates and the ability to operate the business without infringing the intellectual property rights of others; the reliance on third parties to conduct preclinical studies or clinical trials; the rate and degree of market acceptance of any approved product candidates; possible actions by customers, suppliers, potential strategic partners, competitors, and regulatory authorities; compliance with listing standards of The Nasdaq Capital Market; and those risks listed under "Risk Factors" as set forth in Imunon's most recent periodic reports filed with the Securities and Exchange Commission, including Imunon's Form 10-K for the year ended December 31, 2022.

While the list of factors presented here is considered representative, no such list should be considered to be a complete statement of all potential risks and uncertainties. Unlisted factors may present significant additional obstacles to the realization of forward-looking statements. Forward-looking statements included herein are made as of the date hereof, and Imunon does not undertake any obligation to update publicly such statements to reflect subsequent events or circumstances except as required by law.

Today's Agenda

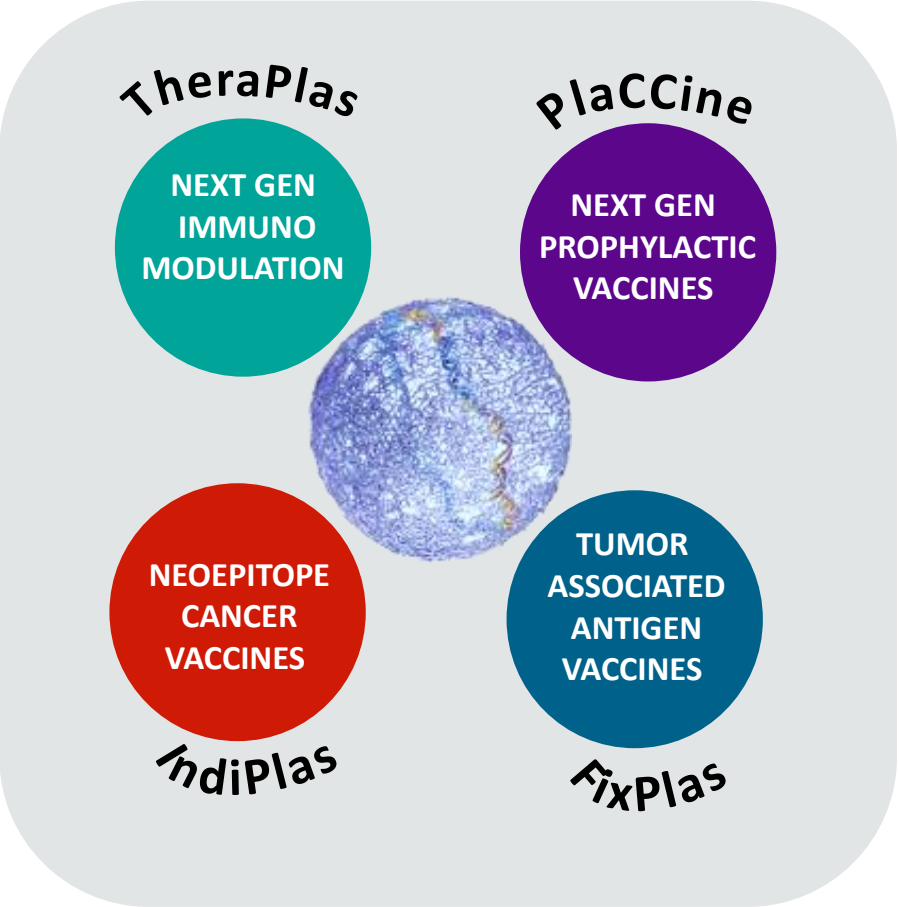
Introduction	***Corinne Le Goff, Pharm.D, PhD*** *President & CEO IMUNON*	*4:00 – 4:15pm*
The Vaccines of the Future	***Sallie Permar, MD, PhD*** *Nancy C. Paduano Professor and Chair* *Weill Cornell Medicine*	*4:15 – 4:35pm*
IMNN-101 Development Plan	***Khursheed Anwer, PhD*** *CSO*	*4:35 – 4:45pm*
Immuno-Oncology: The remaining unmet need	***Patrick Ott, MD, PhD*** *Associate Professor, Medicine, Harvard Medical School* *Clinical Director, Melanoma Center, Dana-Farber Cancer Institute*	*4:45 – 5:05pm*
Intra-tumoral immuno-oncology and cancer vaccine programs	***Khursheed Anwer, PhD*** *CSO*	*5:05 - 5:15pm*
Q&A and Closing Remarks		*5:15 – 5:30pm*

Transforming Medicine with Our Disruptive Non-Viral DNA Technology

Proprietary Synthetic Delivery and Facilitating System, that promotes DNA Protection, Uptake, Bioavailability and Enhanced Antigen Expression

Gene Therapy

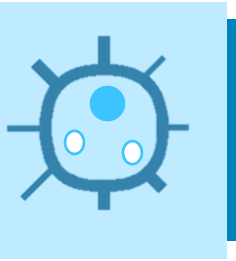
Personalized Cancer Vaccine



Prophylactic Vaccine

Off- the-shelf Cancer Vaccine

IMUNON Strategy to Build a Fully Integrated Biotech Company



FOCUS ON IMMUNO-ONCOLOGY

Cytokines Coding & Cancer Vaccines

GMP MANUFACTURING

In-house Early Development Scale

FOCUS ON INFECTIOUS DISEASES

Pathogen Antigens Coding Vaccines

WORLD CLASS PARTNERS

To Expand our R&D Capabilities

M&A POTENTIAL

Synergistic with our Capabilities

STRONG BALANCE SHEET

To Support our Strategy into 2025

IMUNON's Technology Advantages in Prophylactic Vaccines

Durability of protection

Speed

Flexible manufacturing

Durable antigen expression

Induces robust immunological response

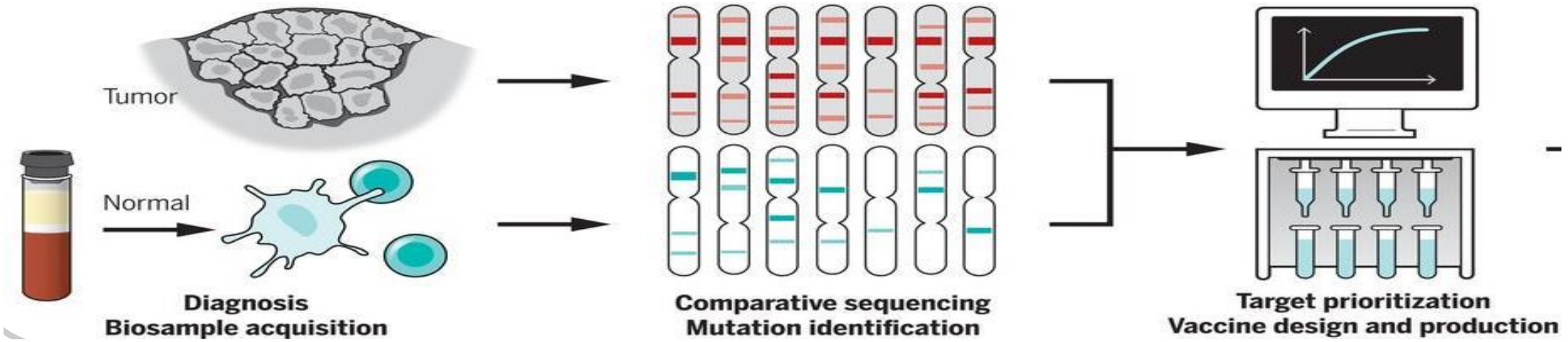
Non-viral DNA is a platform

Ability to go from sequence to the clinic to approved products in record time

Simple handling & distribution

Stability and long shelf-life at workable temperatures - Greater Capital Efficiency

IMUNON's Technology Advantages in Cancer Vaccines



Non-Viral DNA Inducing Durable Antigen Expression

Potent T cell response
Repeat Administration

DNA encoded Cancer Vaccines

Shared Antigens
Individualized Antigens

IMUNON's Pipeline of DNA-based Transformative Medicines

Modality	Program	Indication(s)	Discovery	IND enabling	Phase 1	Phase 2	Partnerships
TheraPlas	**IL-12 (OVATION)** Intraperitoneal (IP)	Advanced Ovarian, Fallopian Tube or Primary Peritoneal Cancer	IMNN-001 (formerly GEN-1)				
	IL-12 IP in combination with **bevacizumab**	Advanced Ovarian, Fallopian Tube or Primary Peritoneal Cancer	IMNN-001 + bevacizumab				BREAK THROUGH CANCER #RadicalCollaboration
PlaCCine	**Multicistronic SARS-CoV-2.** Clinical Proof-of-Concept	COVID-19 Seasonal Vaccine	IMNN-101				
	Prophylactic Vaccine	Infectious Disease target	PL-X				THE WISTAR INSTITUTE; NIH National Institute of Allergy and Infectious Diseases
FixPlas	**Cancer Therapeutic Vaccine**	Trp2 /NYESO-1 Tumor Associated Antigen in Melanoma	IMNN-201				
IndiPlas	**Individualized Neoantigen Cancer Vaccines**		IP-Y				

Financial Summary & Upcoming Key Milestones:

Robust Flow of Value Creating Activities

Cash , Cash Equivalents & Investments

$24.1M

As of June 30, 2023

Shares Outstanding

10.4M

Estimated Operating Expenses per quarter

$4.5M

As of March 31, 2023

2H 2023

- **IMNN-001 OVATION 2 Interim Data**
- **IMNN-102 Pre-IND**
- **IMNN-201 POC Data**

1H 2024

- **IMNN-001 OVATION 2 Topline Results**
- **Interim Results IMNN-001 + bevacizumab**
- **IMNN-101 SARS-CoV-2 Booster IND And start of Phase 1/2**

Dr. Sallie Permar, MD, Ph.D.

Nancy C. Paduano Professor and Chair

Weill Cornell Medicine

Dr. Khursheed Anwer, Ph.D.
CSO IMUNON

Dr. Patrick Ott, MD, Ph.D.
Associate Professor, Medicine
Harvard Medical School
Clinical Director, Melanoma Center
Dana-Farber Cancer Institute

Dr. Khursheed Anwer, Ph.D.
CSO IMUNON

Vaccines of the Future

Sallie Permar, MD, PhD

Nancy C. Paduano Professor and Chair, Weill Cornell Medicine
Pediatrician-in-Chief, NewYork-Presbyterian/Weill Cornell Medical Center

@salliepermar

Weill Cornell Medicine

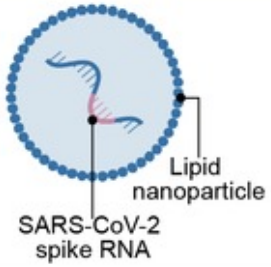
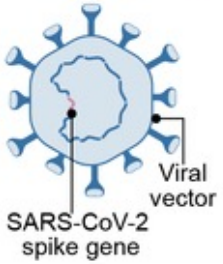
NewYork-Presbyterian
Komansky Children's Hospital

Dr. Permar is a consultant for Pfizer, Merck, Moderna, GSK, Hoopika, and Dynavax CMV vaccine programs

Weill Cornell Medicine

NewYork-Presbyterian
Komansky Children's Hospital

Highly successful SARS-CoV-2 mRNA/LNP vaccine developed in "warp speed"

	mRNA platform	Replication-defective live-vector platform	Recombinant-subunit-adjuvanted protein platform
			
Description	Encapsulated genetic instructions that allow vaccinated individuals to produce the spike protein of SARS-CoV-2 to stimulate immune system but cannot cause COVID-19.	Non-replicating virus that delivers genetic instructions to allow vaccinated individuals to produce the spike protein of SARS-CoV-2 to stimulate immune system but cannot cause COVID-19.	Fully-formed spike protein of SARS-CoV-2 delivered with adjuvant, which helps to stimulate immune system of vaccinated individuals but cannot cause COVID-19.
Operation Warp Speed candidates (most advanced clinical trial phase)	**Moderna** (phase 3) **Pfizer/BioNTech** (phase 3)	**Janssen** (phase 3) **AstraZeneca** (phase 3)	**Sanofi/GSK** (phase 2) **Novavax** (phase 3)

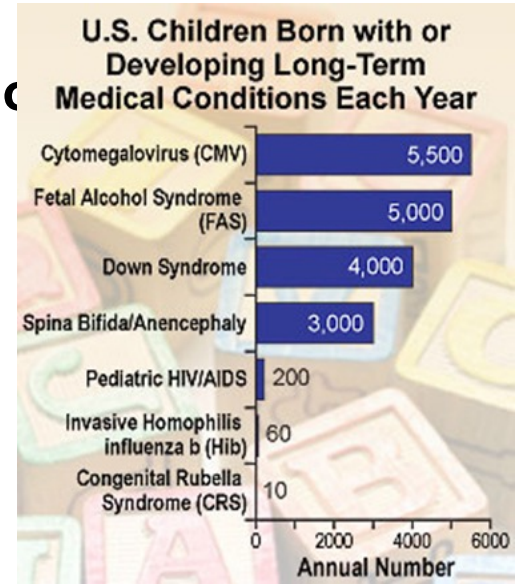
Source: GAO (analysis). Adaptation of images depicting vaccine technologies with permission from Springer Nature: *Nature* ("The Race for Coronavirus Vaccines: A Graphical Guide," Ewen Callaway) © 2020. | GAO-21-319

Congenital Cytomegalovirus (CMV)

- **Most common congenital infection and cause of birth defects worldwide**
  - 1/200 (0.5%) live-born infants globally
  - 40,000 cases annually in US, ~5,000 have permanent sequelae
  - 4 billion cost annually in US

- **Leading cause of pediatric neurologic deficits**
  - Up to 25% of infant hearing loss due to CMV

- **Tier 1 priority vaccine by the National Academy o Medicine for >20 years**



50+ years of CMV vaccine development, yet we still await an approved vaccine

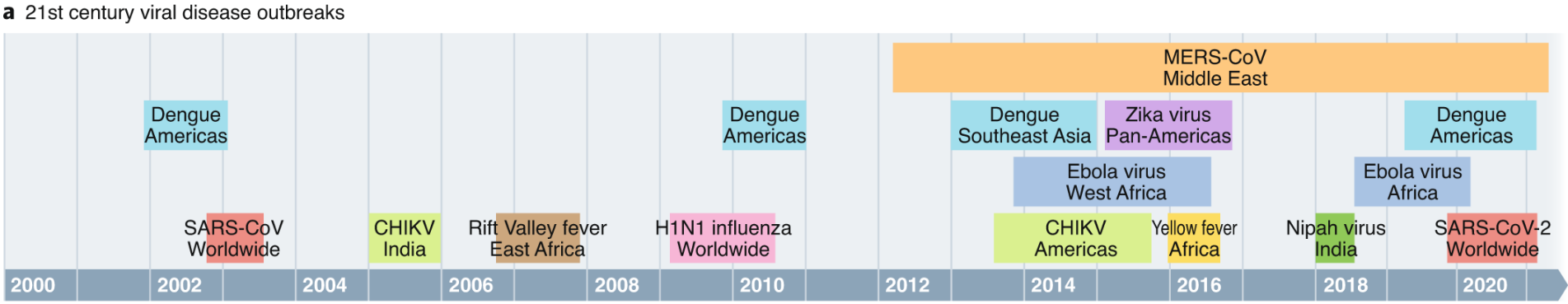
1972

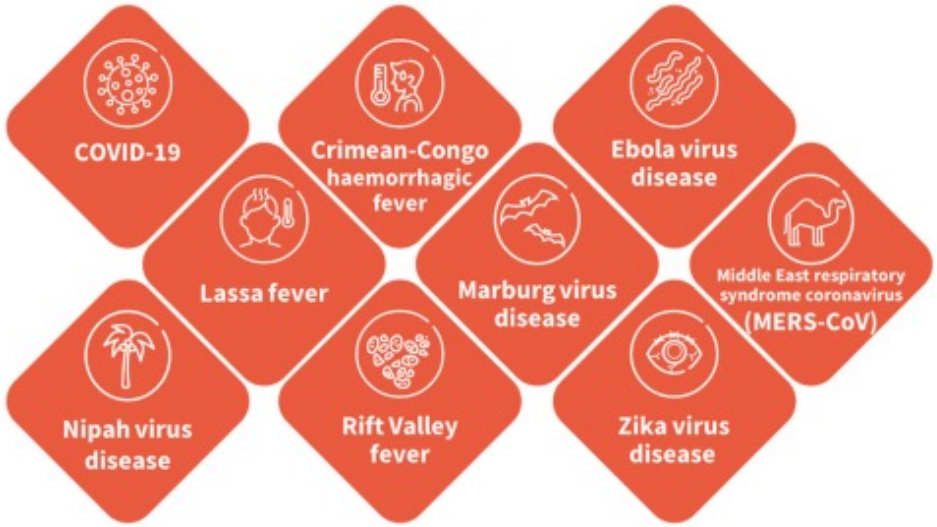
2023

Vaccine Platform	Phase	Efficacy
Live attenuated	Phase I,II	Reduction of disease in renal tx
Live viral vectors	Phase I	-
gB subunit	Phase I,II	**50%**
eVLP	Phase I	**-**
Single round DISC vectors	Phase I,II	**42%**
PC subunit/MVA	Phase I	-
DNA	Phase I,II,III	ongoing
mRNA (gB + PC)	Phase I,II,III	ongoing

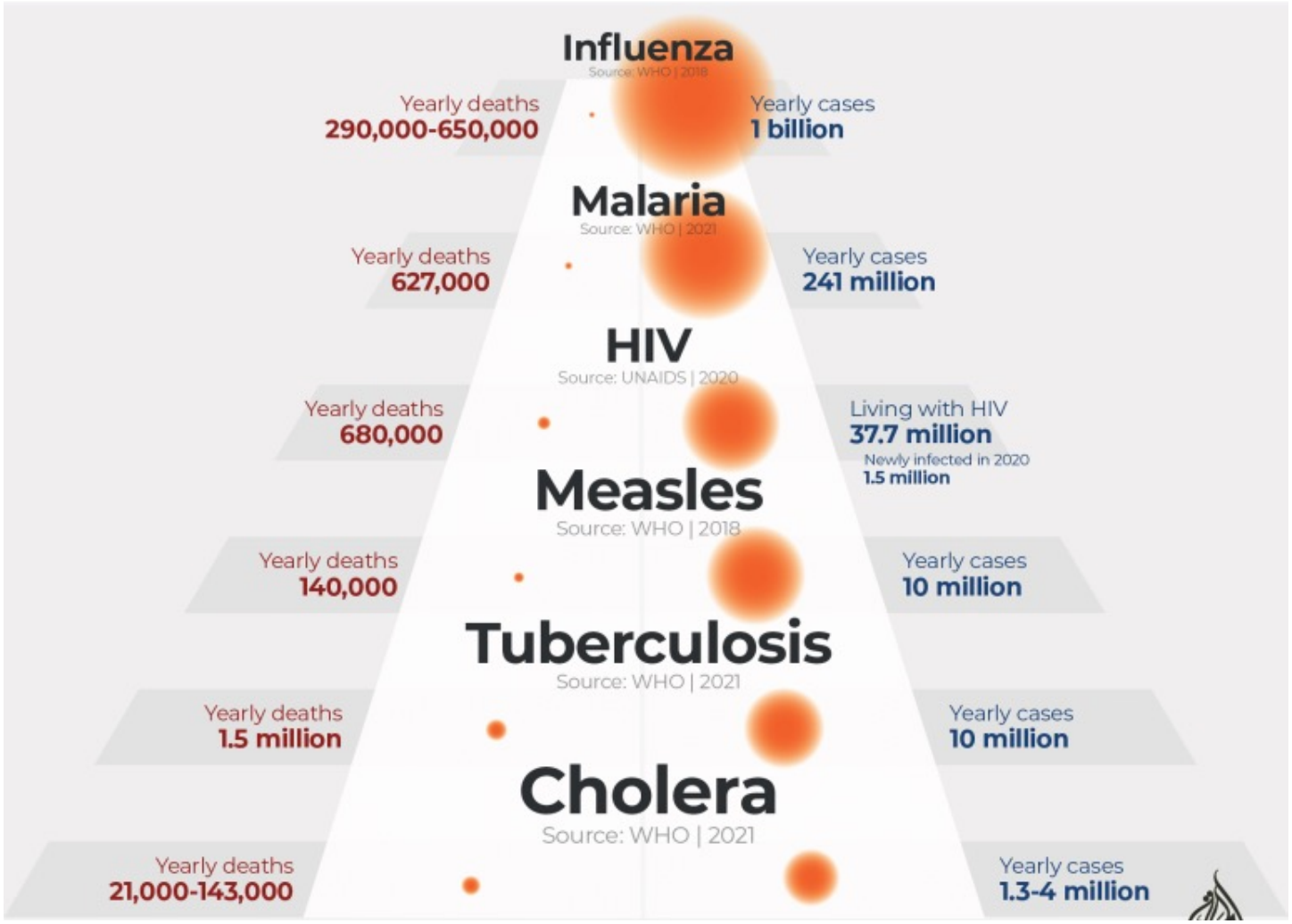
Modified from Schleiss et al, 2017

The rate of pandemics is increasing

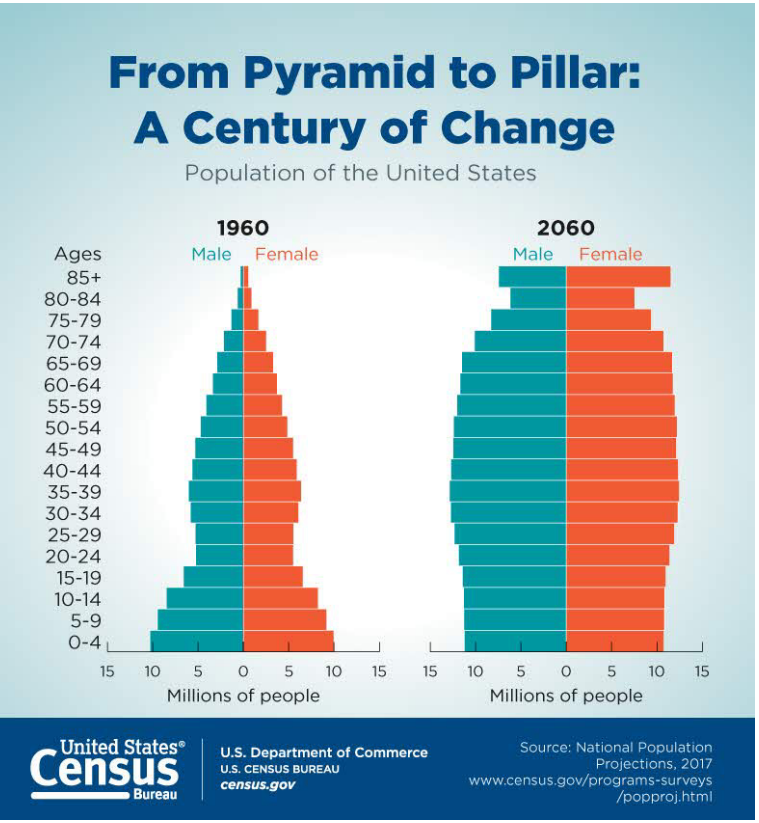


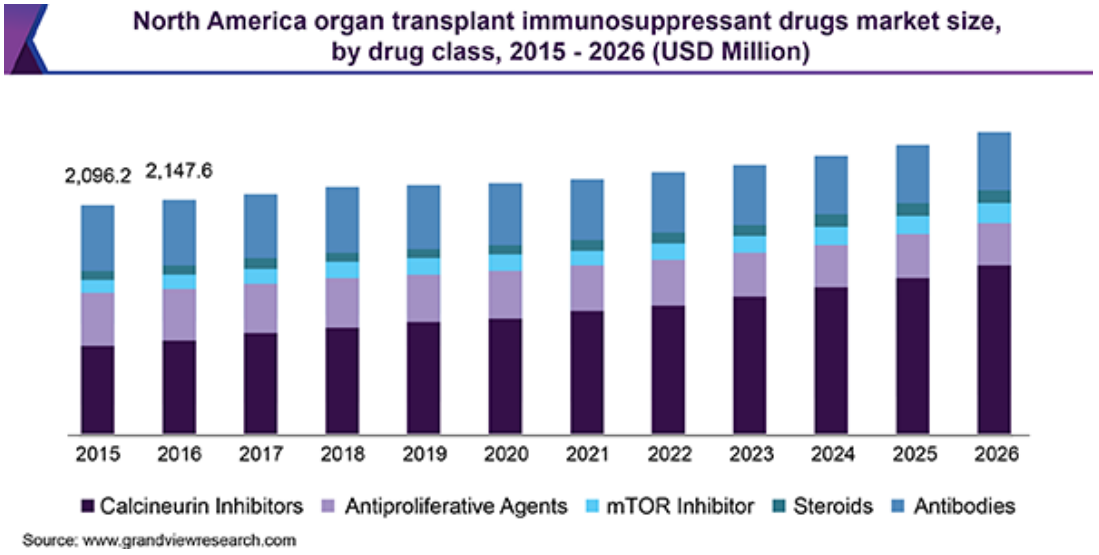


Yet, deadly endemic infections still require novel vaccine efforts



Populations vulnerable to infectious diseases are increasing: elderly and immunocompromised



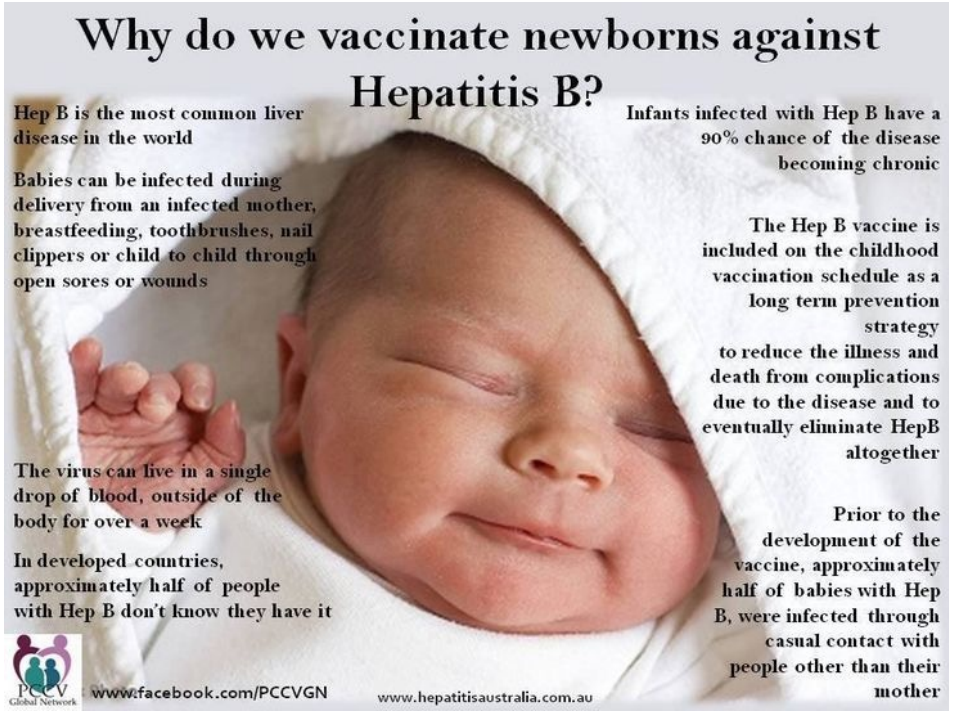


Pregnant women and children frequently more vulnerable to pandemic variants

- Pregnant/lactating women and children left out of early phase vaccine development
    - Prevents innovations from reaching these groups
- Children require specific safety and dose ranges, often done late
    - A health disparity that children had delayed access to the SARS-CoV-2 vaccine

https://www.aamc.org/news-insights/are-covid-19-vaccines-safe-during-pregnancy-experts-weigh

Ideal Immunity: Vaccination in infancy for life-long prevention



Hepatitis B vaccine

- 1st dose: Birth
- 2nd dose: 1-2 months
- 3rd dose: 6-18 months

High risk newborn:

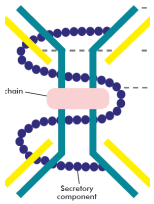
- HIBIg + HepB vaccine (passive + active)

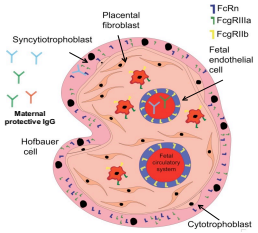
Leverage rapidly designed/produced DNA vaccine platforms to design vaccines to protect the next gen

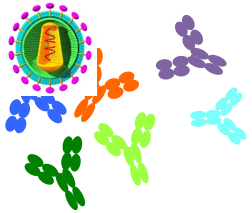
Two Novel Approaches:

1. <u>Reverse vaccinology</u>: Isolation of potent mAbs from pre-screened, infected patients, use to design antigens that will elicit potent, protective responses

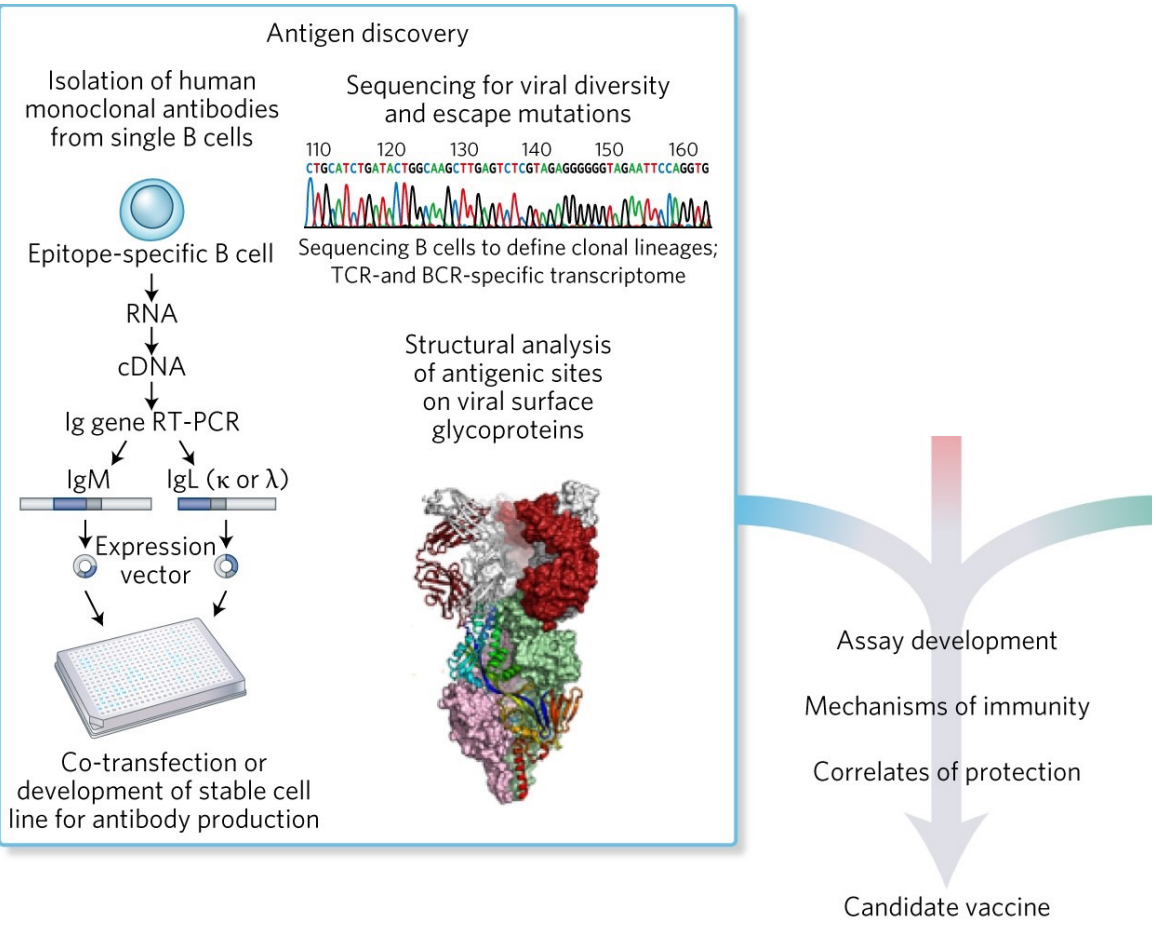
2. <u>Protective Transfer</u> : Passive immunization with designer mAbs delivered by DNA/RNA technology that are durable and doesn't require IV infusion





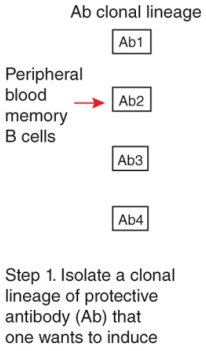


New Era of Vaccines:
Pandemic Readiness via Reverse Vaccinology



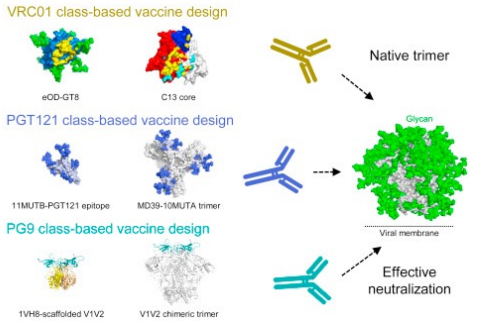
Challenging Vaccines: Where natural immunity is not protective

<u>Reverse Engineering 2.0</u> Strategy: Identify immunogens that can select for B cells with key mutations required for neutralizing IgG development



Step 1. Isolate a clonal lineage of protective antibody (Ab) that one wants to induce

(Haynes, et al. 2012)

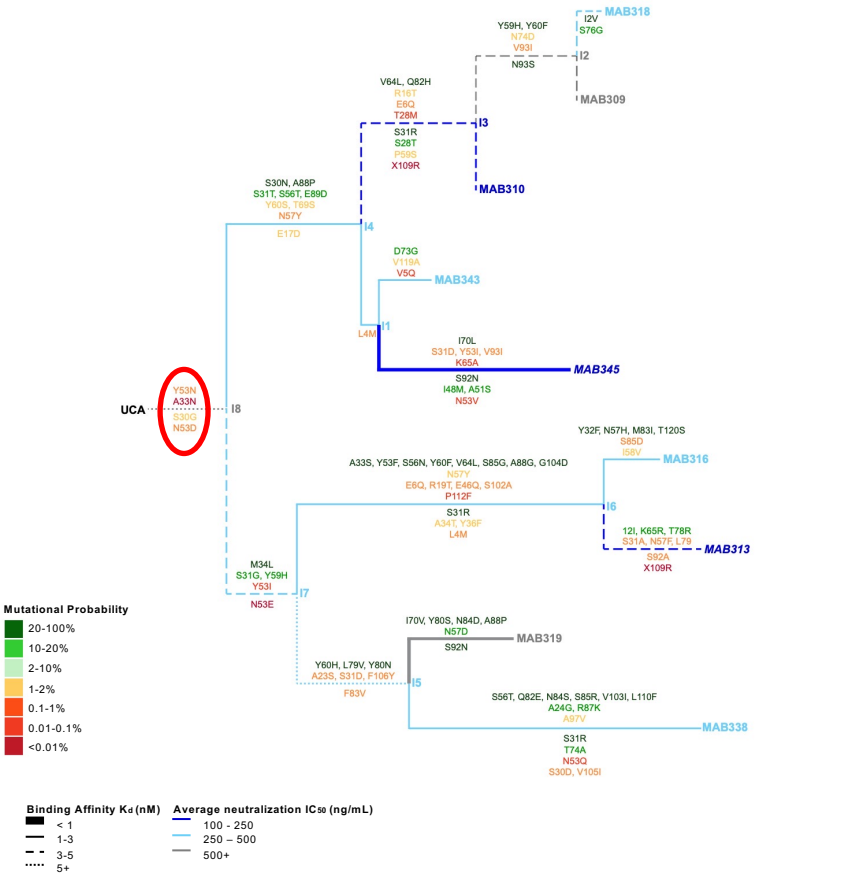


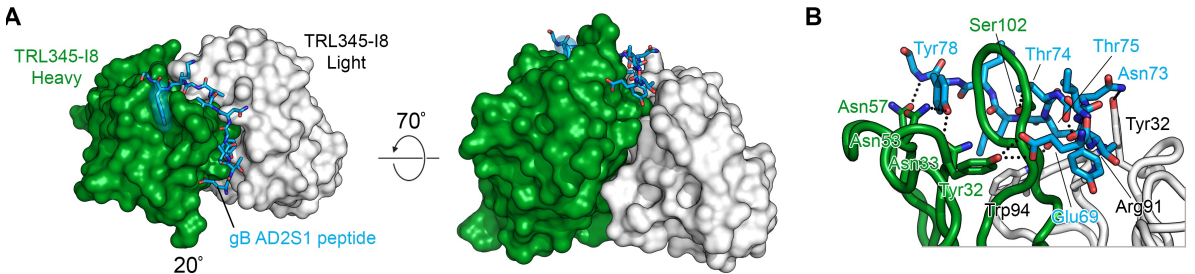
(Kwong, Mascola, 2018)

Improbable B cell mutations prevent development of potent antibodies after vaccination

Problem: Improbable B cell mutations may impose a bottleneck on B cell lineage maturation

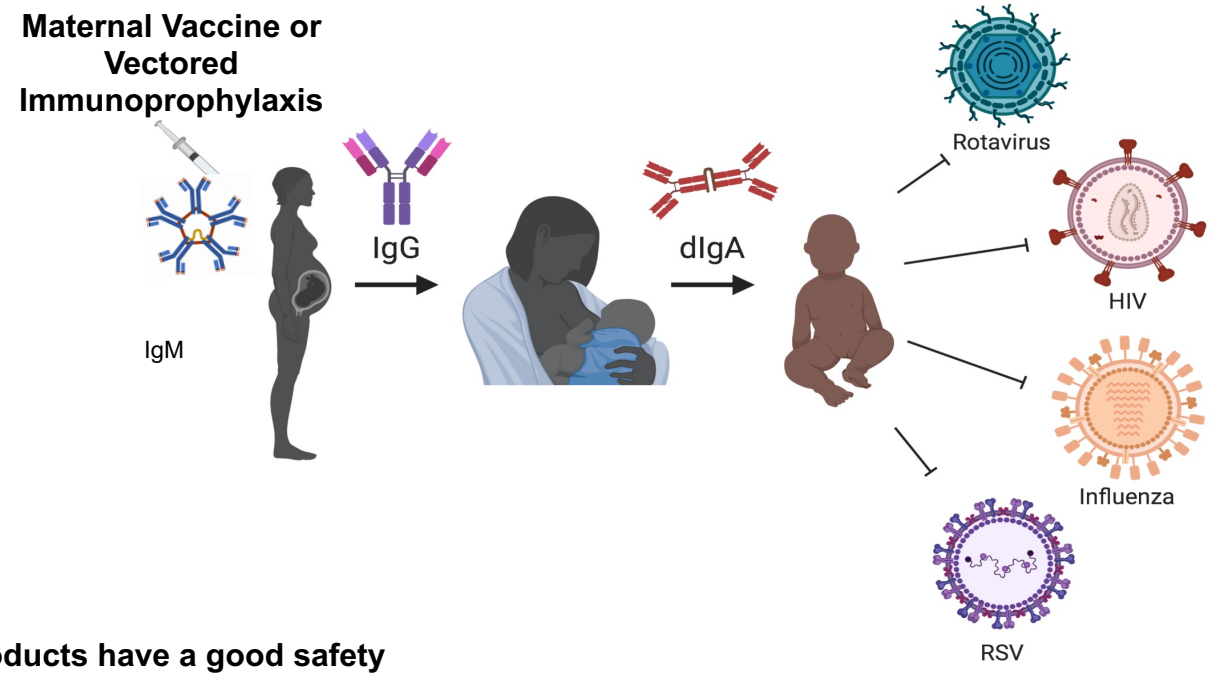
Solution: Rapidly iterative vaccine design for engaging early/rare B cell lineages





Protective Transfer: Design protective antibodies for delivery to specific sites of virus acquisition

Abs at the maternal/fetal interface



Antibody products have a good safety profile and precedent in pregnancy

- **Rh factor incompatibility**
- **Varicella (VariZIG)**

Vertical transmission of Zika Virus

- **1 in 10 pregnant women** with a confirmed Zika infection had a baby with congenital Zika syndrome (US population, CDC)
  - **>11,000 cases** of microcephaly in 2015-16 epidemic

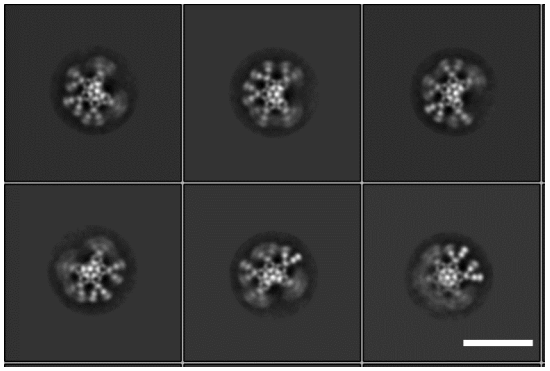
http://www.bbc.com/news/world-latin-america-37112639

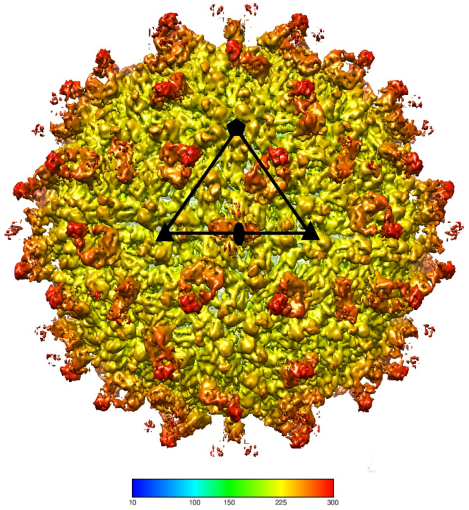
- **Congenital ZIKV symptoms:**
  - Microcephaly
  - Visual and hearing impairment
  - Neurodevelopmental defects

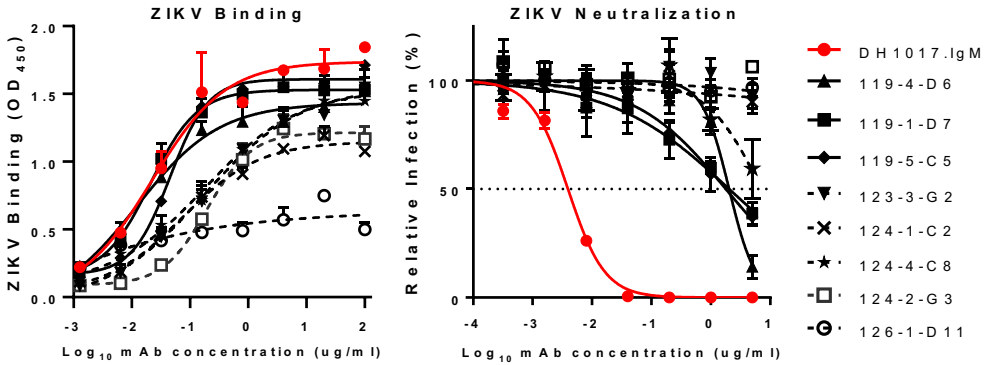
Need interventions to block ZIKV infections during pregnancy

- **No licensed vaccine**
  - Phase 1 trials only performed in non-pregnant subjects

Ultrapotent ZIKV-neutralizing IgM mAb DH1017.IgM







Virus Binding (AUC)

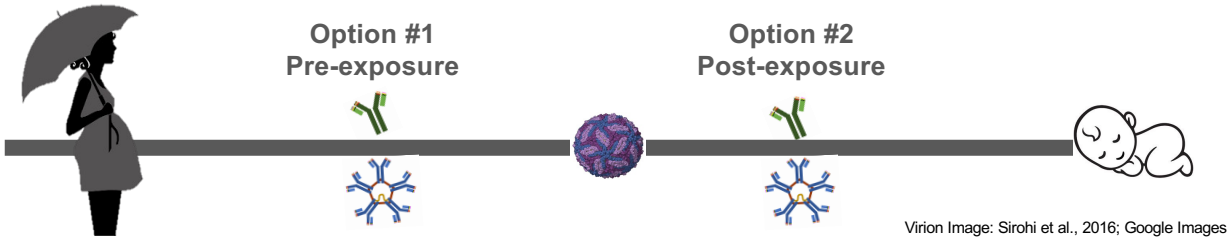
Subject (DPS)	mAb ID	ZIKV	DENV1	DENV2	DENV3	DENV4
B cell derived mAbs						
P73 (71)	DH1017.IgM	187	8	9	8	10
P34 (162)	119-4-D6 (IgG)	144	23	23	71	24
P34 (162)	119-1-D7 (IgG)	153	15	15	26	11
P34 (162)	119-5-C5 (IgG)	163	35	36	63	94
Memory B cell derived mAbs						
P73 (28)	123-3-G2 (IgG)	141	156	226	146	35
P56 (19)	124-4-C8 (IgG)	143	179	218	185	78
P56 (19)	124-1-C2 (IgG)	113	49	180	56	13
P56 (19)	124-2-G3 (IgG)	119	139	197	73	17
P54 (77)	126-1-D11 (IgG)	63	29	25	40	13
Control	Synagis (-)	0.6	0.6	0.6	0.7	0.5

Quintiles:
1st
2nd
3rd
4th
5th

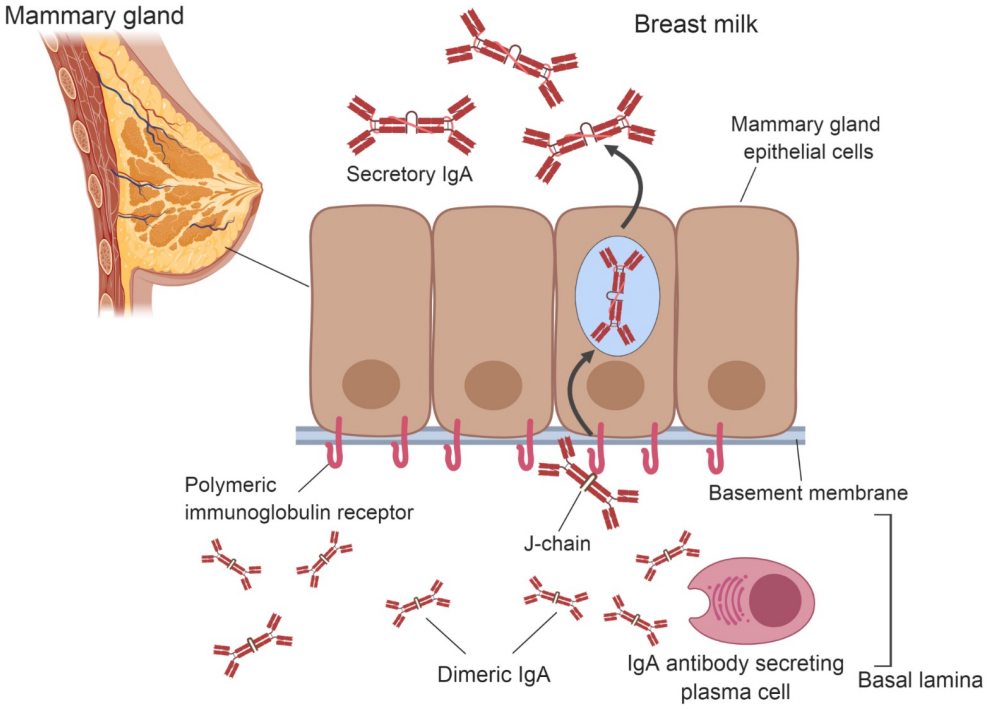
Singh et al, Cell 2022,

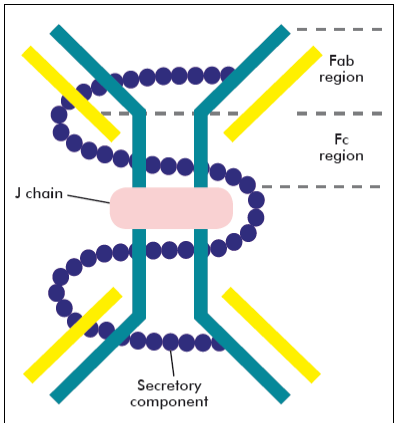
Maternal potent IgM as Zika post or pre-exposure prophylaxis that does not cross the placenta

Potential uses of a ZIKV immunoprophylaxis:

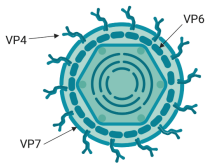


Protective Transfer: maternal dIgA for transfer into breast milk to protect against neonatal enteric pathogens



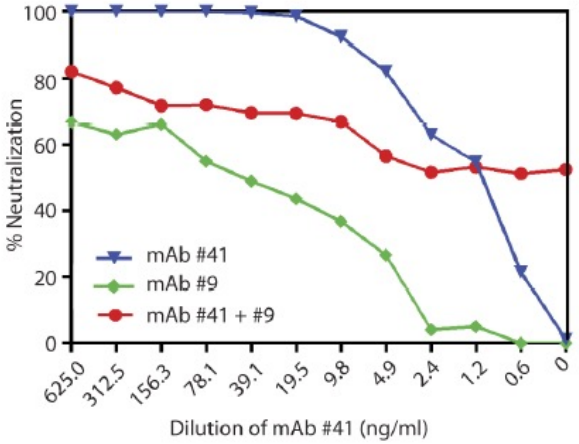


Design of a maternally administered dIgA to traffic to breast milk and block rotavirus transmission to the infant



mAb#41

- **Isolated from IgA⁺ antibody secreting cells in the intestine**
- **VP4-specific**
- **Neutralizing *in vitro* and *in vivo***

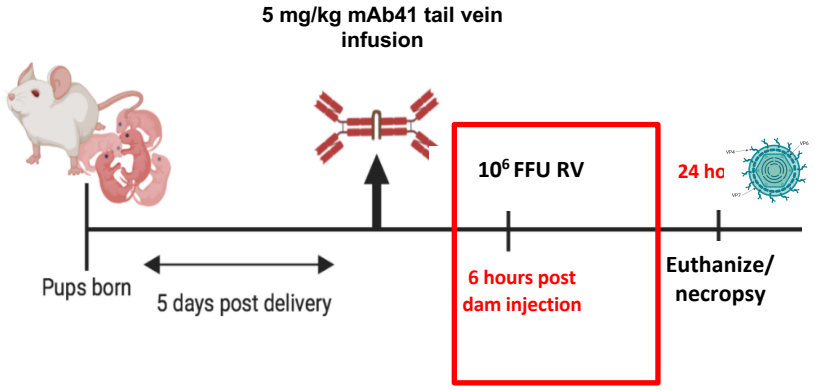


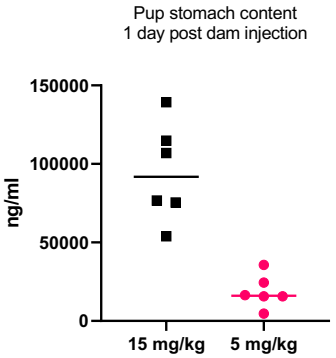
Nair et al., 2017

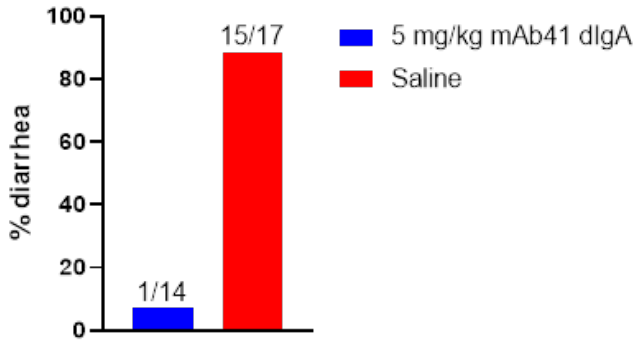
Produce as a dimeric IgA

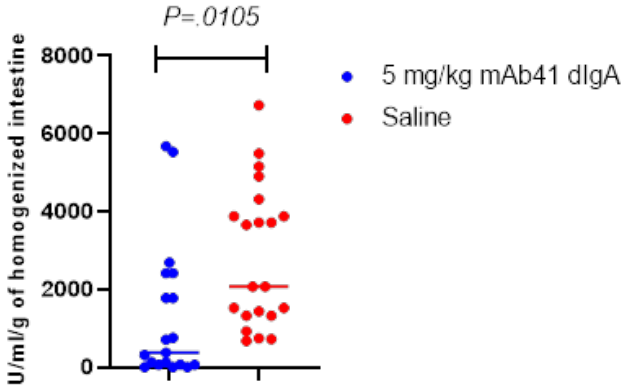
Stephanie Langel, PhD
Maria Blasi, PhD

Systemically administered maternal dIgA protect against rotavirus challenge









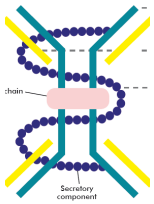
Leveraging rapidly designed/produced DNA vaccine platform for vaccines of the future

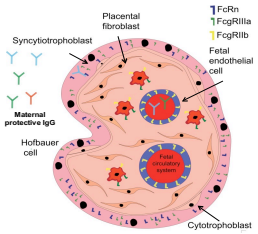
<u>Reverse vaccinology</u>: Isolation of potent mAbs from pre-screened, infected patients, use to design antigens that will elicit potent, protective responses

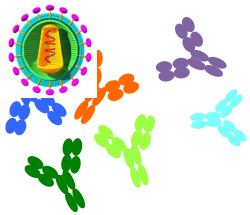
- **DNA vaccines could be rapidly and iteratively developed for this approach**

<u>Protective Transfer</u> : Passive immunization with designer mAbs

- **Delivered by DNA technology that is durable and doesn't require IV infusion**







IMNN-101 Development Plan

Dr. Khursheed Anwer, PhD, MBA
CSO IMUNON

IMNN-101– The Lead PlaCCine Product

Next-Generation Covid-19 DNA Vaccine

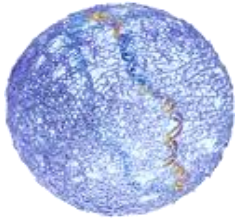
Addressing the limitations of current vaccines

Key Distinguishing Attributes

- Durable Ag expression
- Stable at working temp
- Plug & Play design for rapid response

Antigen DNA Plasmid

Omicron XBB1.5 Spike Antigen



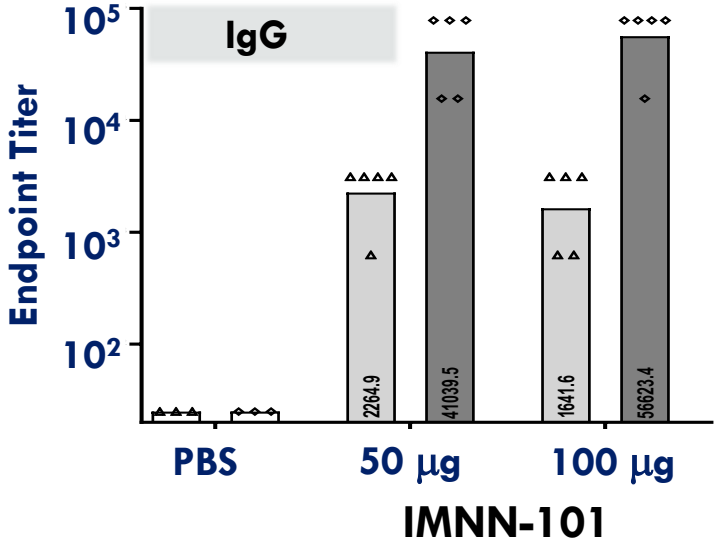
Synthetic DNA Delivery System

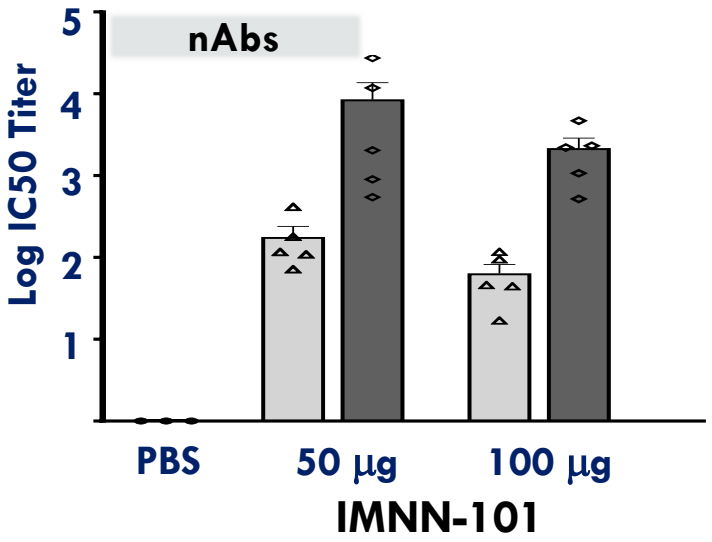
Safe & efficient delivery
- non-viral, non-device

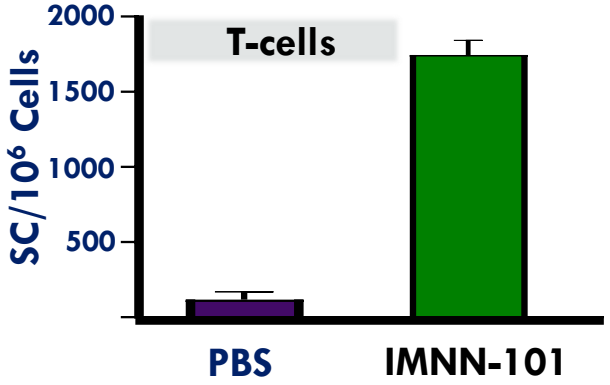
IMNN-101- Potentially the First Vaccine Capitalizing on DNA Advantages

IMNN-101– Evidence of Robust Immunogenicity in a Mouse Model

Prime & Boost



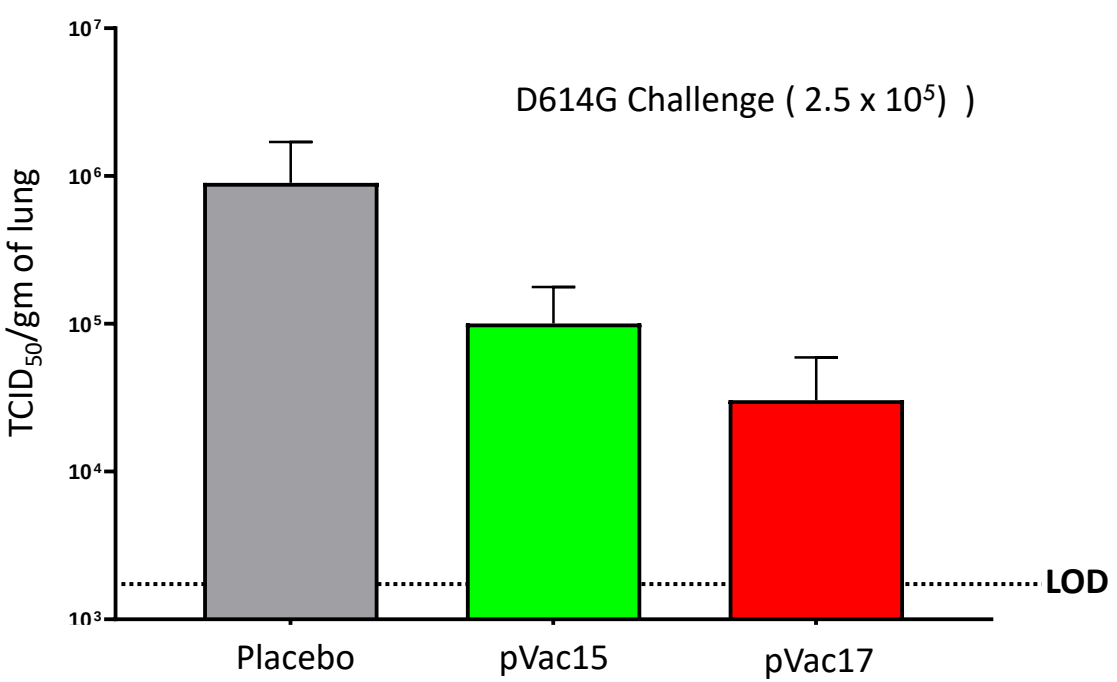




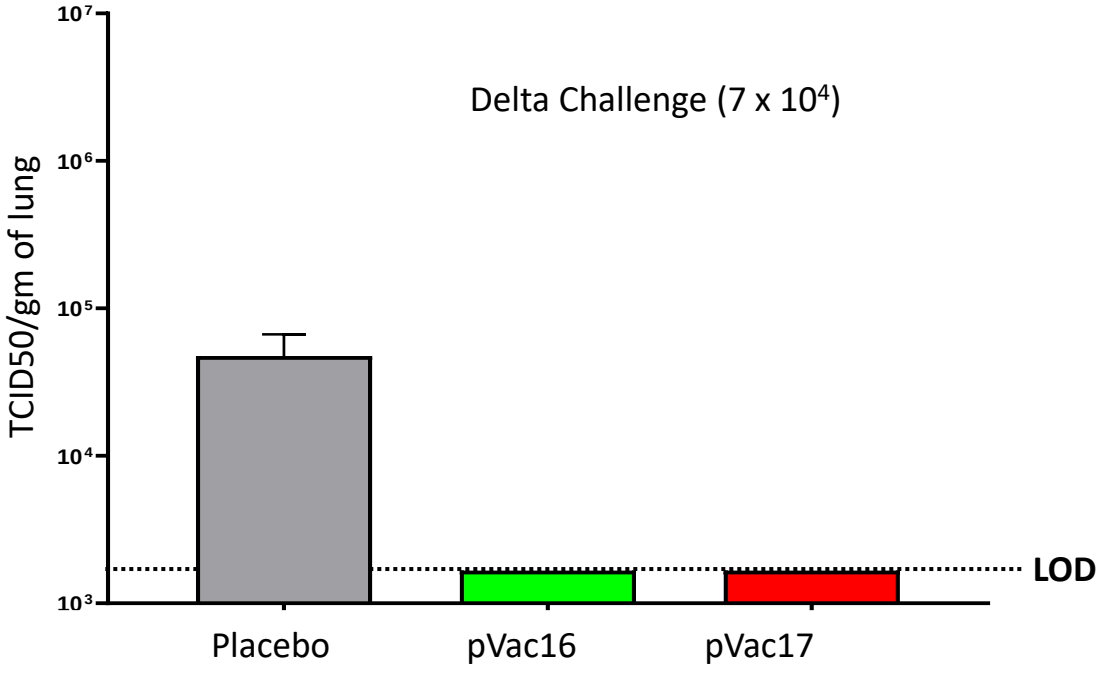
Over 90% Protection From Live Viral Challenge in Mice

IMNN-101 Prototypes – Early Spike Variants

TCID50 Tissue Culture Infection Dose



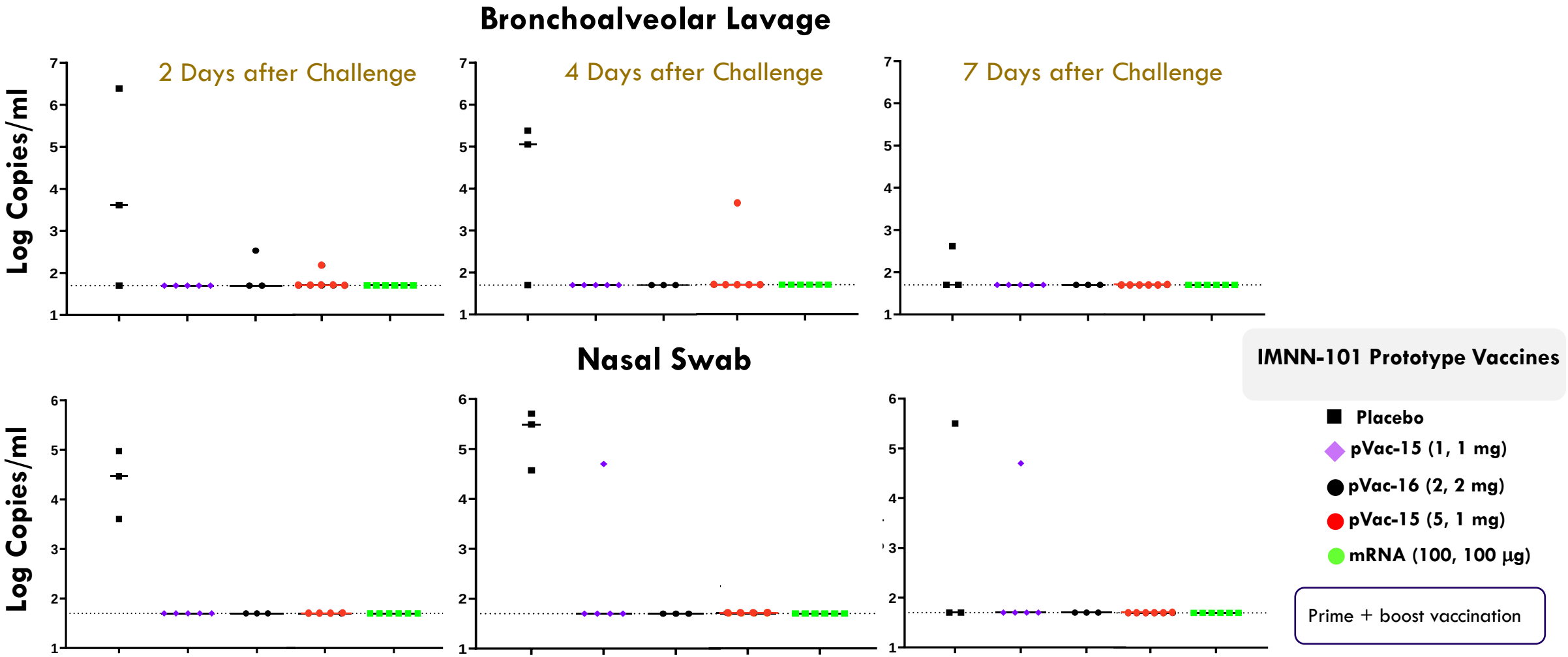
IMNN-101 Prototype Vaccines



IMNN-101 Prototype Vaccines

Complete & Comparable Viral Clearance to mRNA Vaccine in Monkeys

IMNN-101 Prototypes- Early Spike Variants



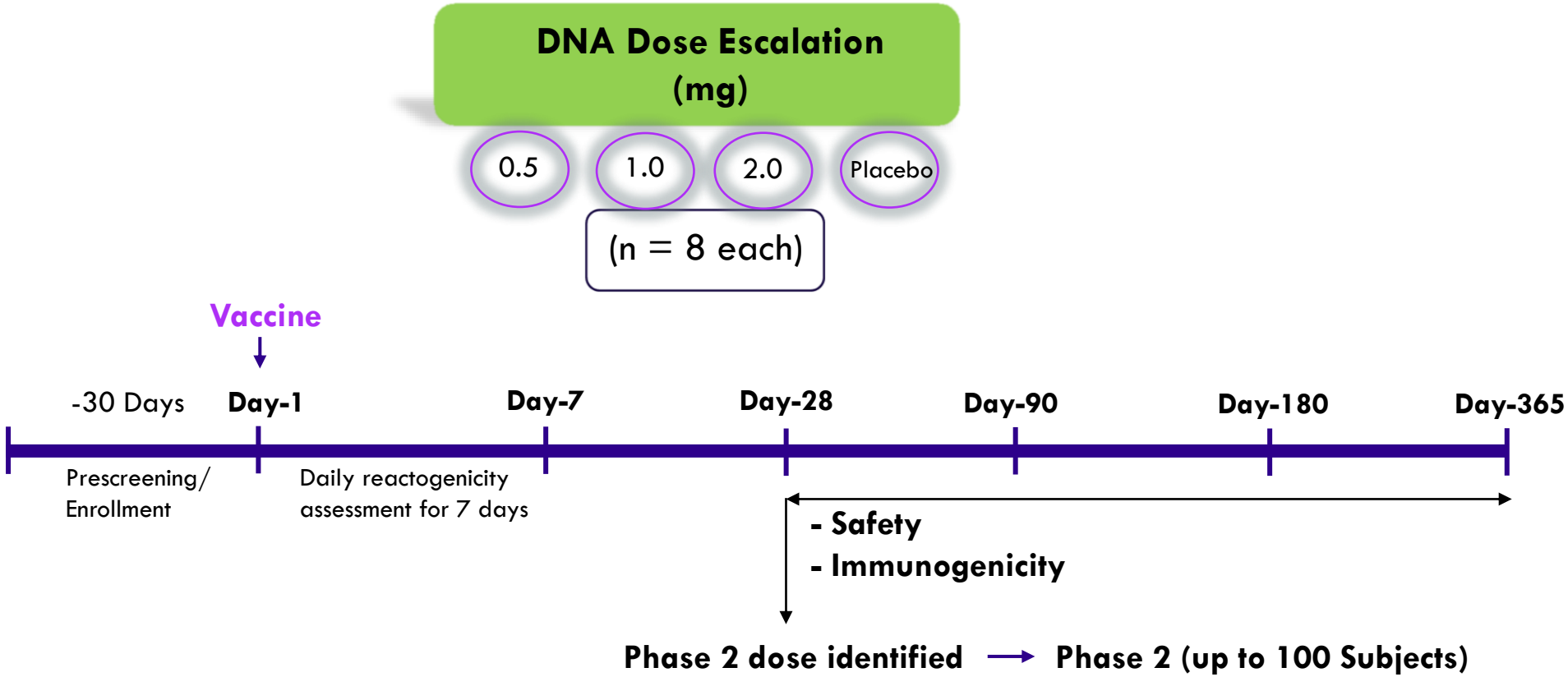
IMNN-101– Development Status

Preclinical Proof of Concept	✓
IND-Enabling Studies	
Safety Tox	4Q 2023
Biodistribution	4Q 2023
Clinical Lot	1Q 2024
IND Filing	1Q 2024
Phase 1	April 2024
Phase 2	June 2024

IMNN-101– FDA-Reviewed Clinical Development Plan

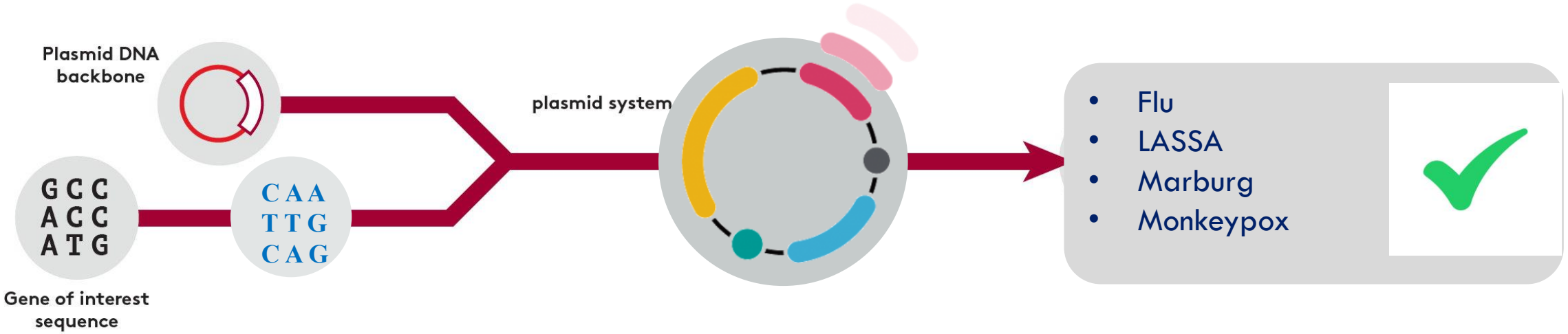
Phase 1/2 Trial in Healthy Subjects: Single Dose, Placebo Controlled

Rapid Dose Escalation Followed by Expanded Phase 2 Approach for Speedy Completion

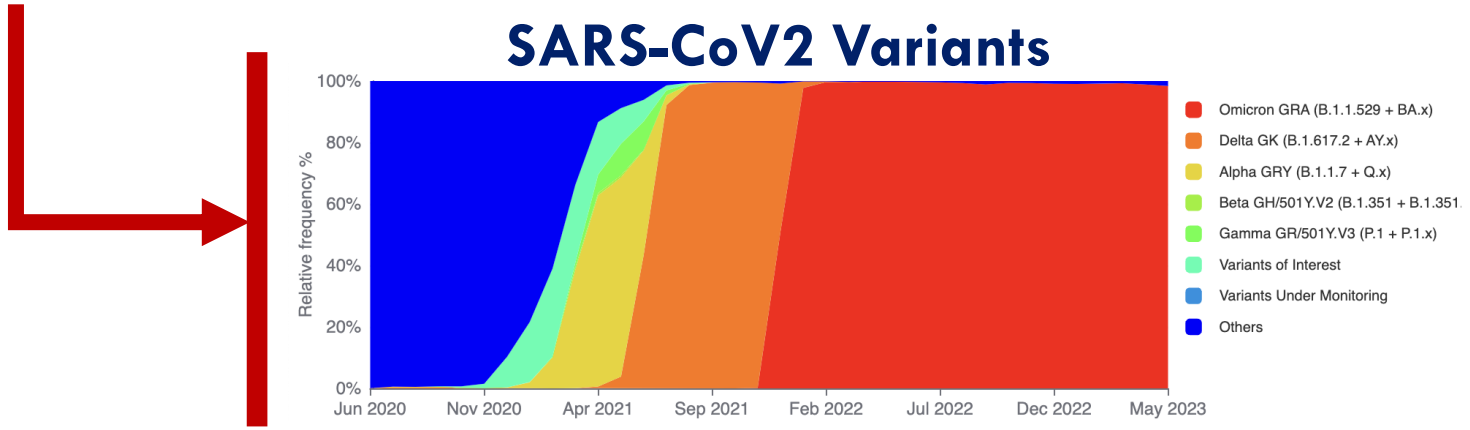


Plug & Play Allows for Rapid Response to New & Urgent Vaccines

Proof of Concept Against Multiple Pathogens



Antigen Coding Cassettes



Active Vaccine Partnerships

- **NIAID/NIH – LASSA**
- **Wistar Institute – Flu, Marburg**

Personal(ized) Immunotherapy

Patrick A Ott, MD, PhD

Clinical Director, Melanoma Center
Dana Farber Cancer Institute
Associate Professor of Medicine
Harvard Medical School

BWH BRIGHAM AND WOMEN'S HOSPITAL

Dana-Farber Cancer Institute

HARVARD MEDICAL SCHOOL

Disclosures

Advisory Role: Alexion, Array, Bristol-Myers Squibb, Celldex, CytomX, Genentech, Merck, Neon Therapeutics, Novartis, Pfizer, TRM Oncology, Evaxion, Immunetune, Imunon, Servier

Grants to institution: Armo Biosciences, AstraZeneca/MedImmune, Bristol-Myers Squibb, Celldex, CytomX, Genentech, Merck, Neon Therapeutics, Novartis, Pfizer

Speaking Engagement: Medscape

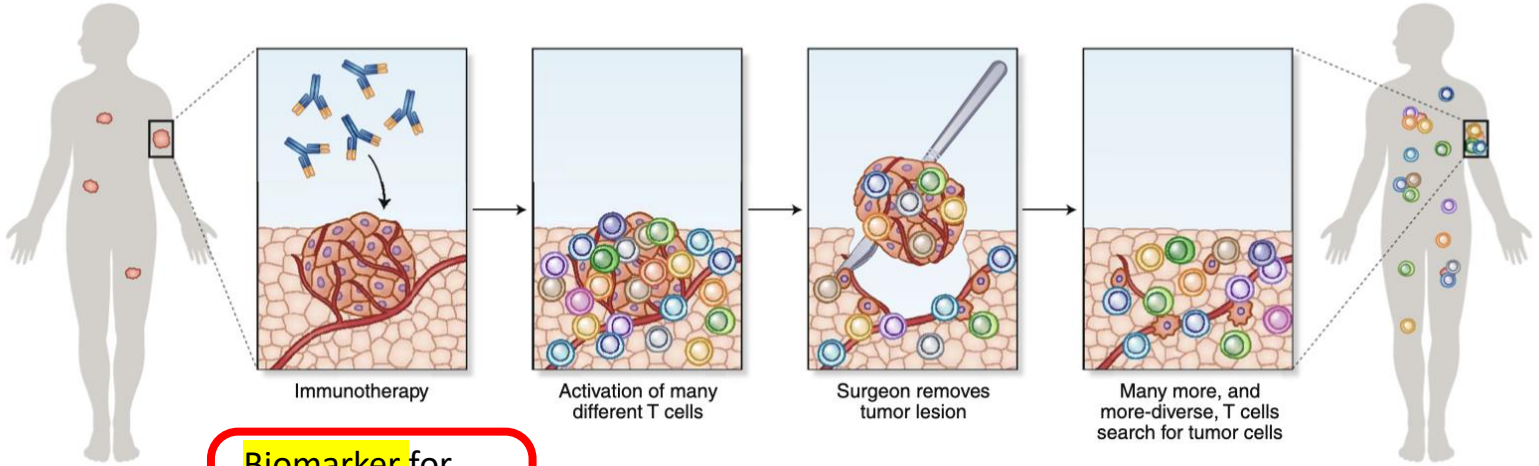
What is personalized Immunotherapy, really?

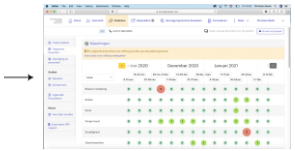
Personalized Immunotherapy in the neoadjuvant setting: Use of biomarkers to adapt therapy

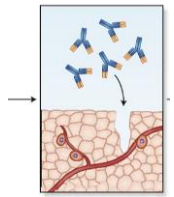
Baseline biomarker
- response
- toxicity

On treatment biomarkers for early Tx adjustment

Pathologic response
- prognosticator
- +/- adj therapy







Biomarker for combination vs monotherapies

Adapted from Blank, *ASCO* 2022, *Nat Med* 2022

Personalized Immunotherapy in the neoadjuvant setting: Use of biomarkers to adapt therapy

Baseline biomarker
- response
- toxicity

On treatment biomarkers for early Tx adjustment

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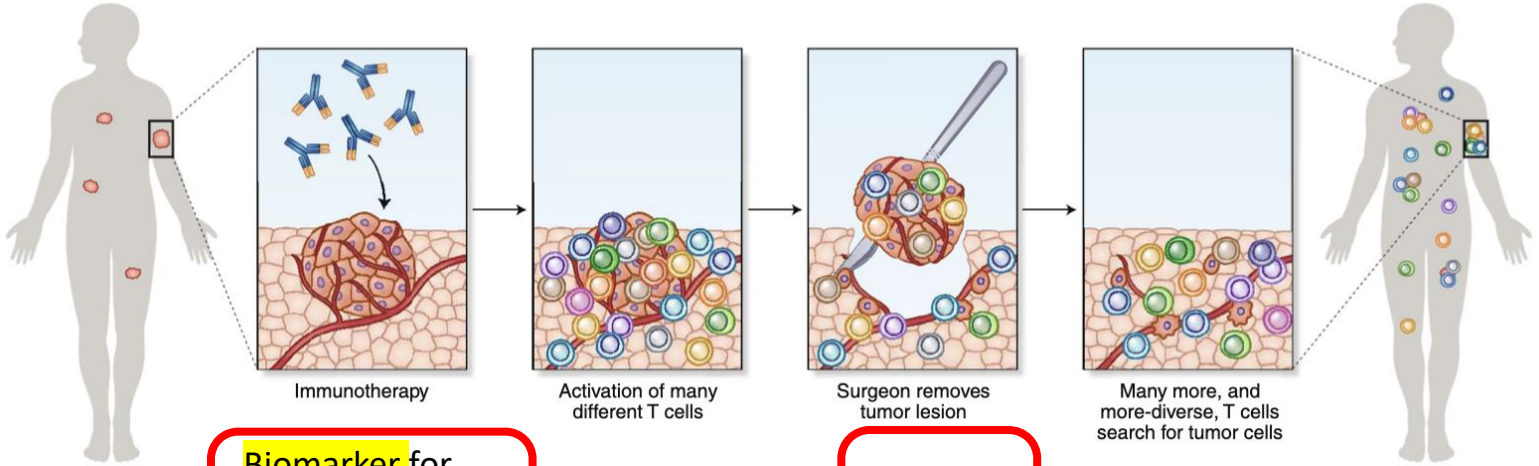
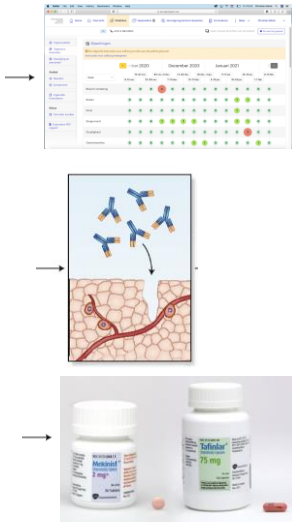




Biomarker for combination vs monotherapies

Extent of surgery

Adjuvant therapy

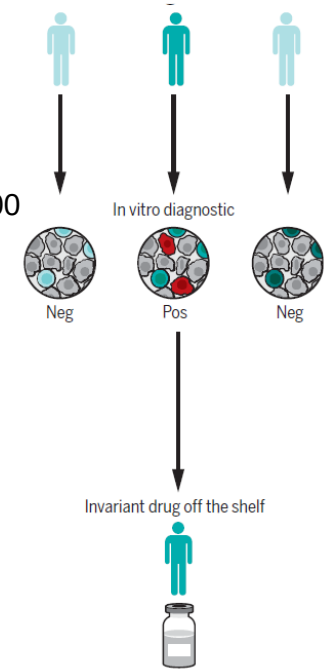
Monitoring

Adapted from Blank, *ASCO* 2022, *Nat Med* 2022

“Stratified” vs. “Personalized Therapy”

Stratified

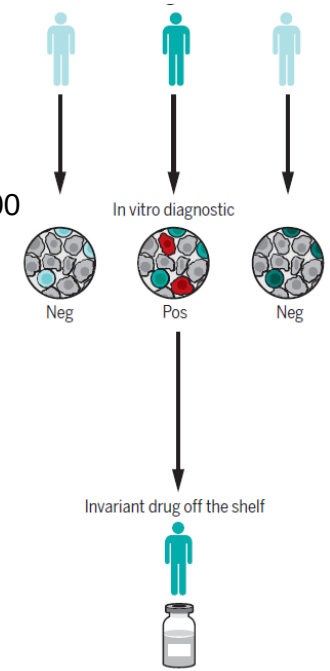
- Tebentafusp – HLA-A2
- BRAF/MEKi – $BRAF^{V600}$
- EGFR/ALK/METi



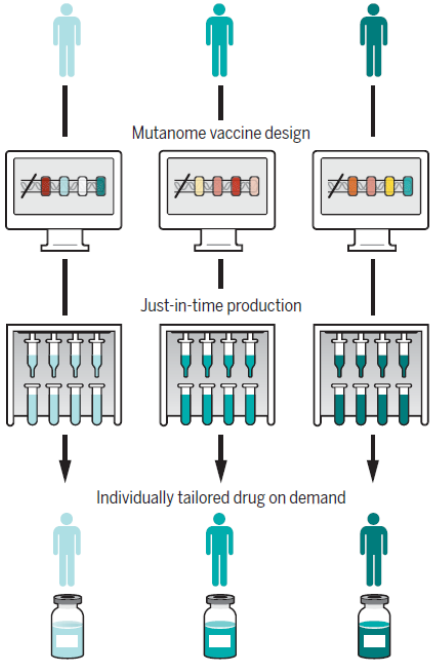
“Stratified” vs. “Personalized Therapy”

- Tebentafusp – HLA-A2
- BRAF/MEKi – $BRAF^{V600}$

Stratified

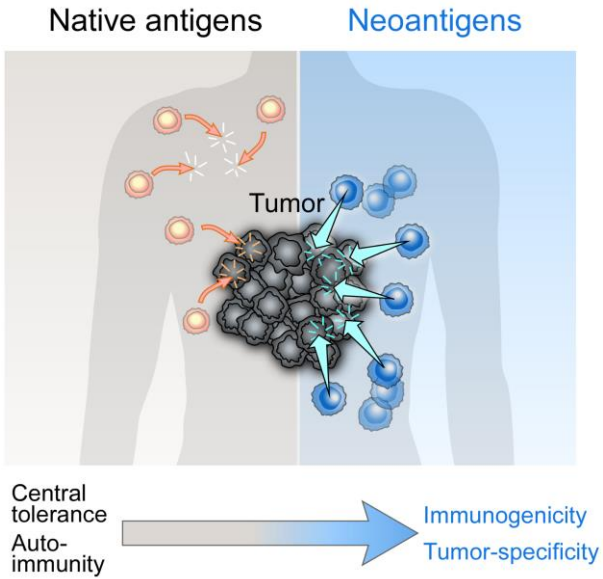


Personalized – the drug is custom-made for each patient



- Personalized Vaccines
- Adoptive T cell Therapy

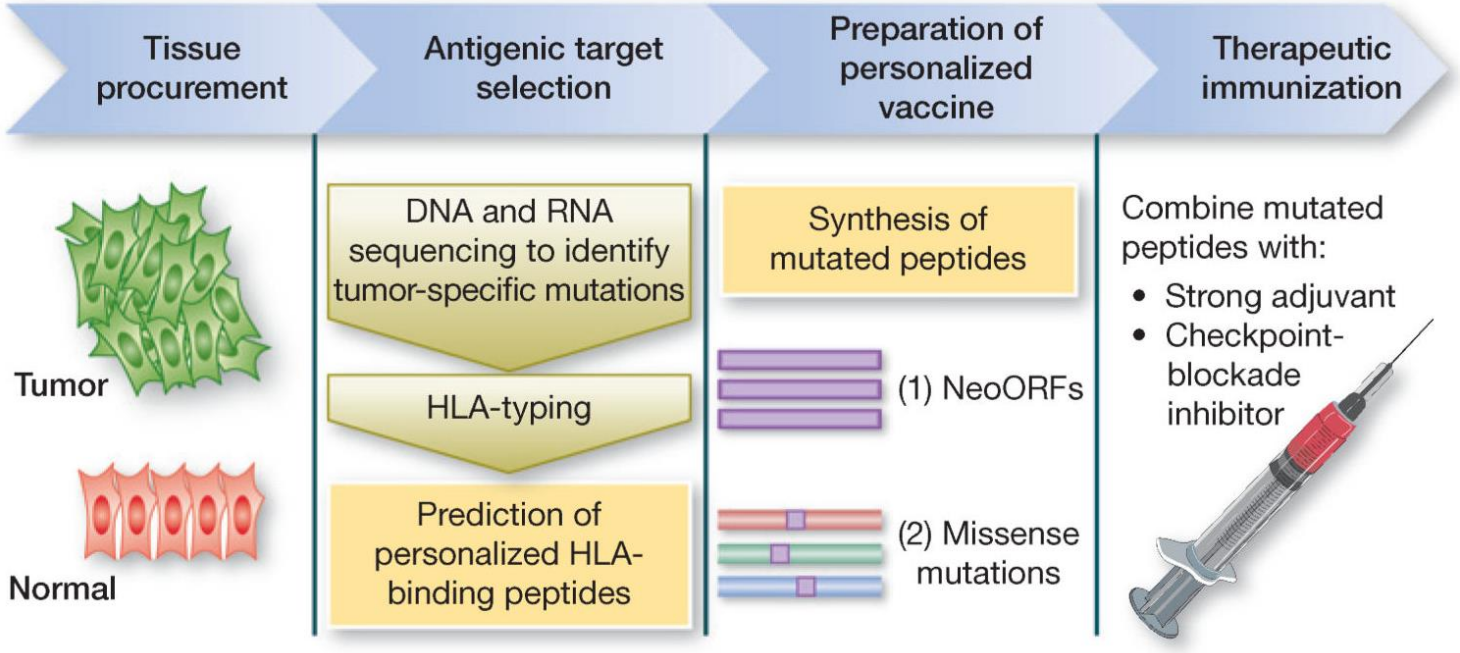
Neoantigens as Cancer Immunotherapy Targets: A paradigm shift



A Personal Approach

Ott *Hematol Oncol Clin N Am* 2018

Generation of a personalized neoantigen vaccine



Hacohen *Cancer Immunol Res* 2013

How can Neoantigens be Targeted Therapeutically?

VACCINES

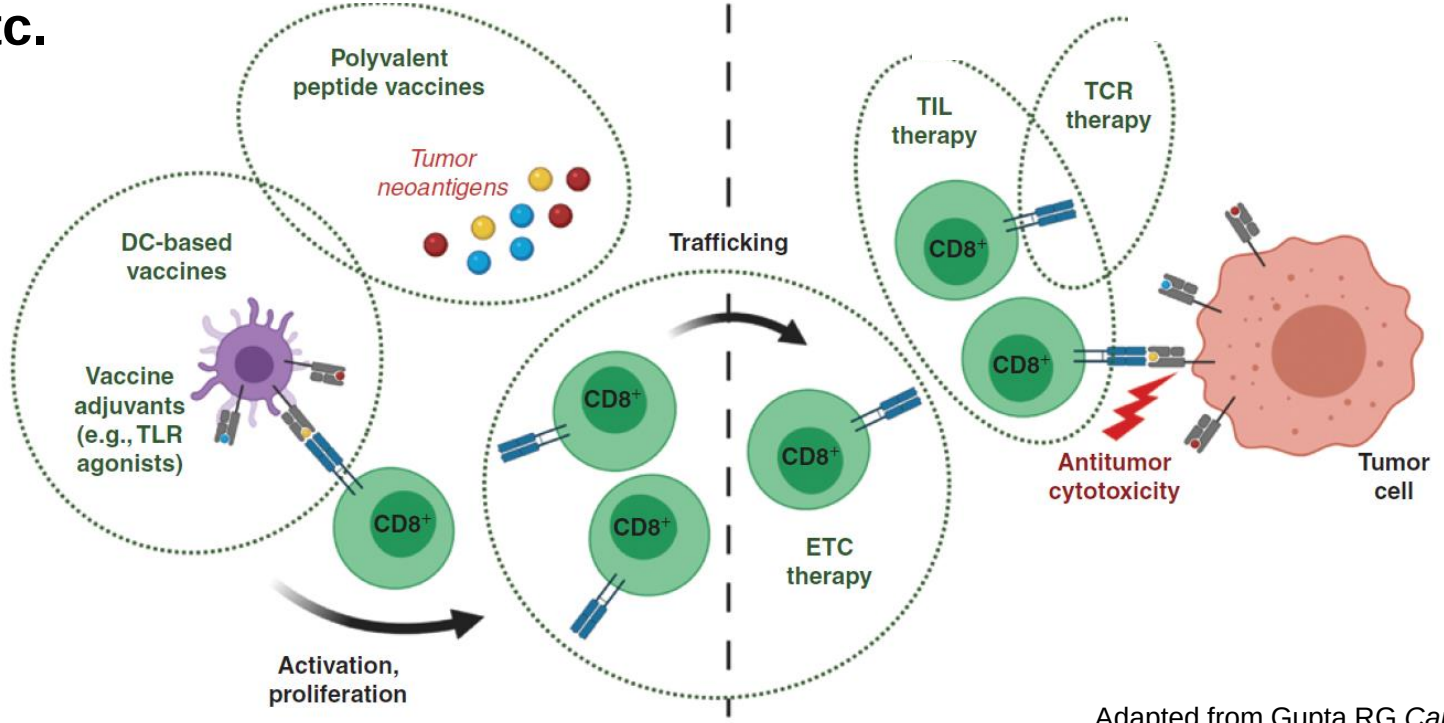
Peptide
RNA/DNA
DC
Viral etc.

Priming Phase: Lymph nodes

Adoptive Cell Transfer

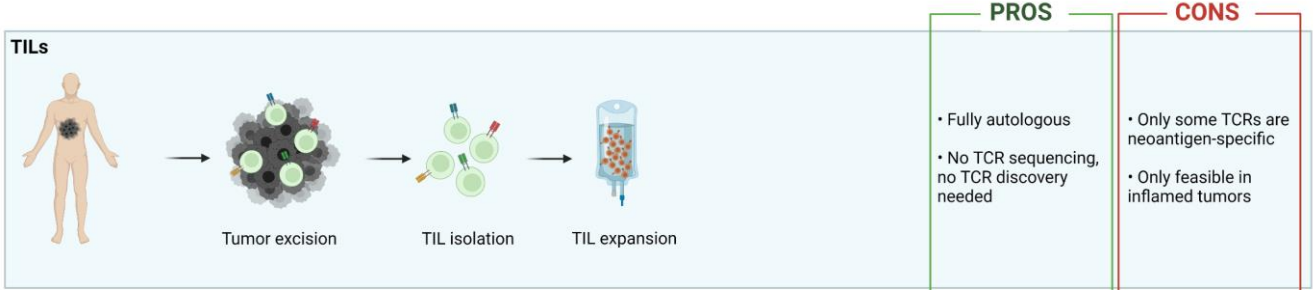
TIL
neoTCR

Effector Phase: Tumor

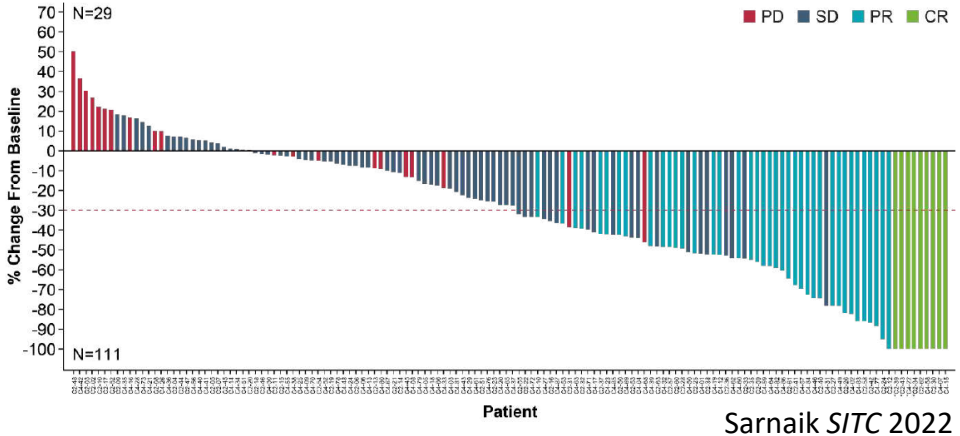


Adapted from Gupta RG *Cancer Discov* 2021

TILs



Lifileucel

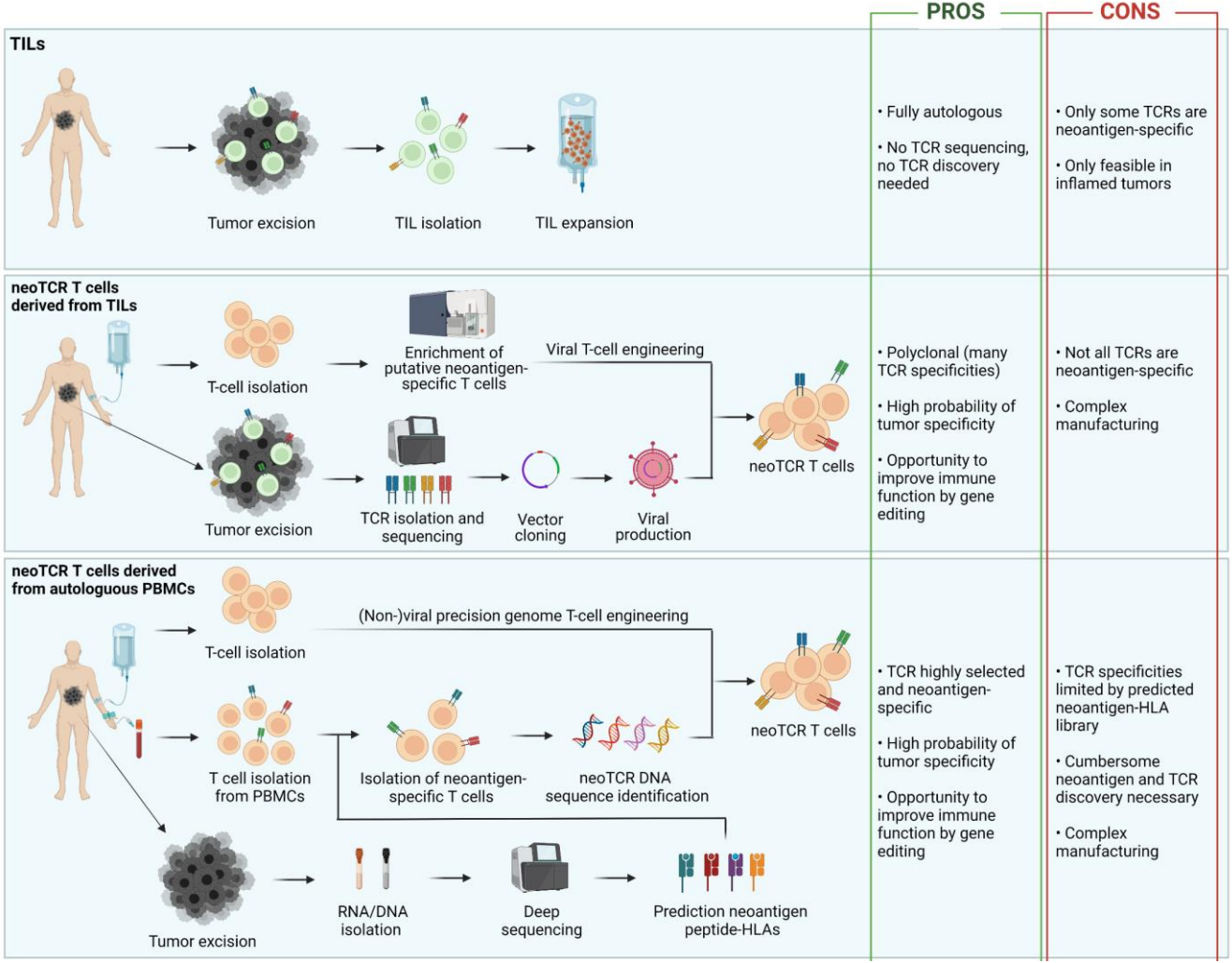


Sarnaik *SITC* 2022

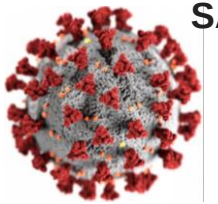
TILs

neoTCR T cells derived from TILs

neoTCR T cells derived from autologous PBMC



Lybaert *Trends in Cancer* 2023

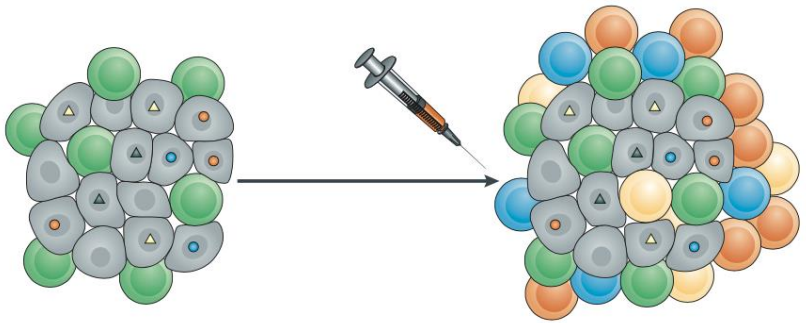


SARS-CoV-2

Pathgens —— **Prophylactic vaccines**

Antibody generation
? T cell responses

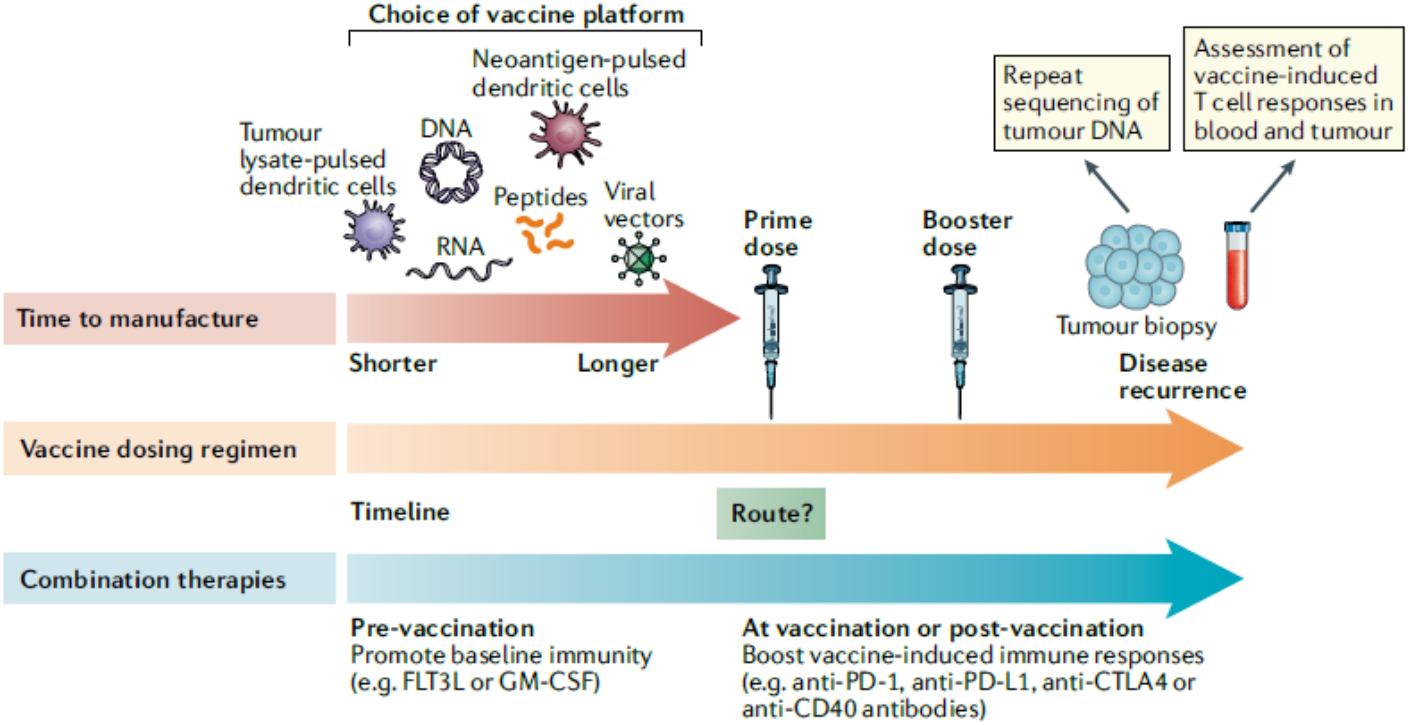
Cancer —— **Therapeutic vaccines**



Increased breadth and diversity of tumour-specific T cell response

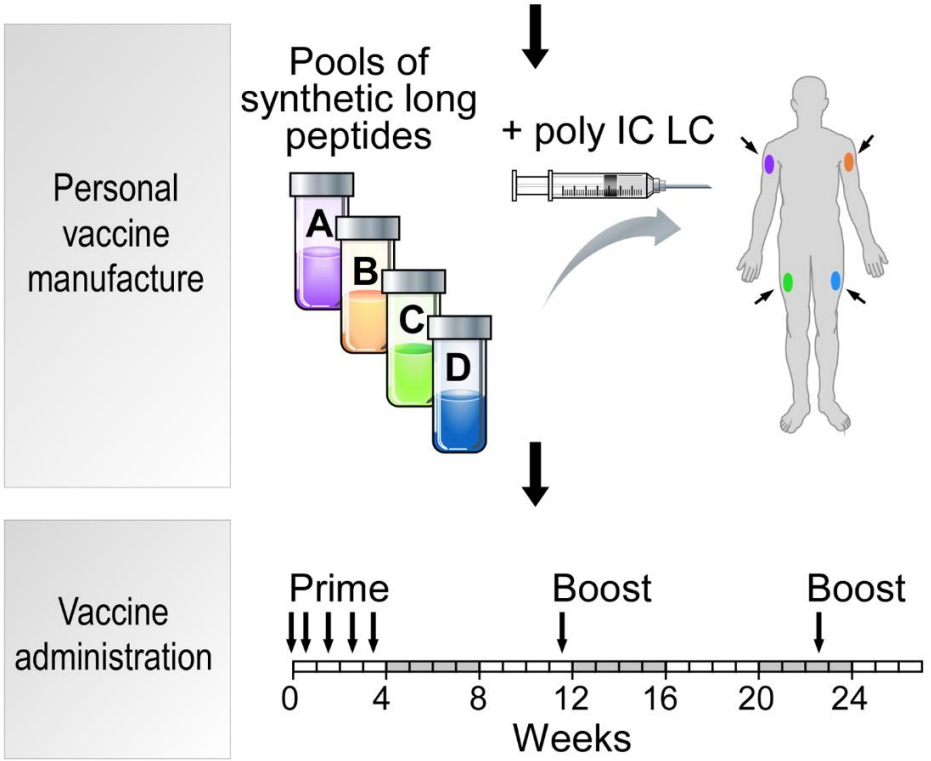
Hu Ott Wu *Nature Reviews Immunology* 2018

Therapeutic Cancer Vaccines: Considerations



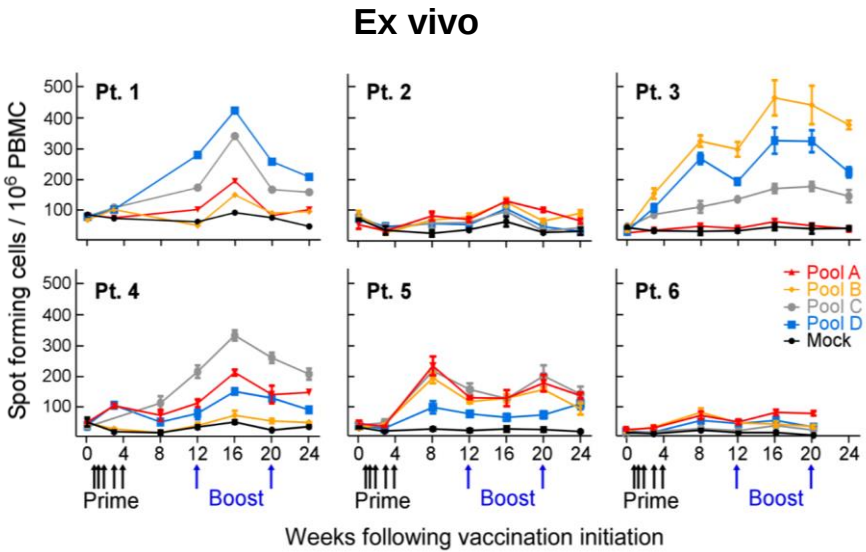
Blass, Ott *Nature Rev Clin Oncol*, 2021

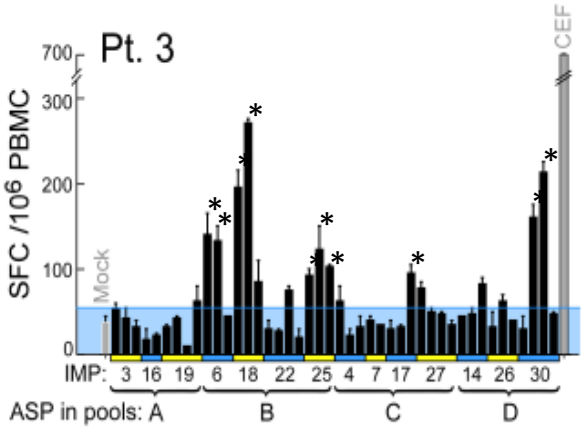
NeoVax in High risk melanoma patients: Study Design



Ott et al. *Nature* 2017

Neoantigen-specific T cell responses



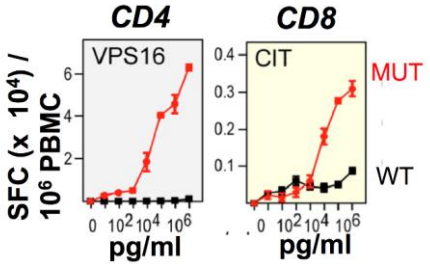


	CD4	CD8
ex vivo	18%	0%
1 stimulation	60%	16%

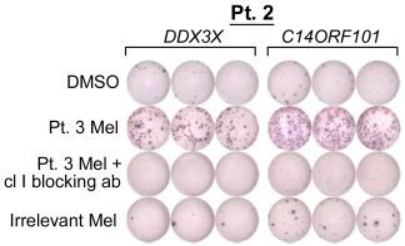
Ott et al. *Nature* 2017

Vaccine-induced T cell responses:

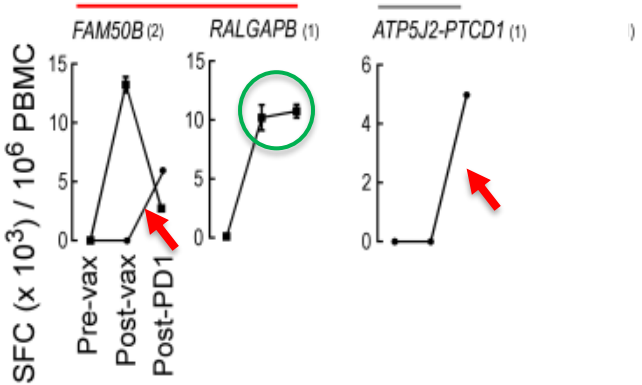
1) Specific for the mutant epitope



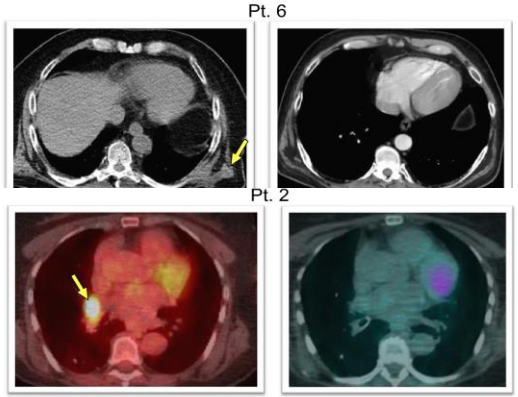
2) Reactive against autologous tumor



4) Broaden after PD-1 inhibition

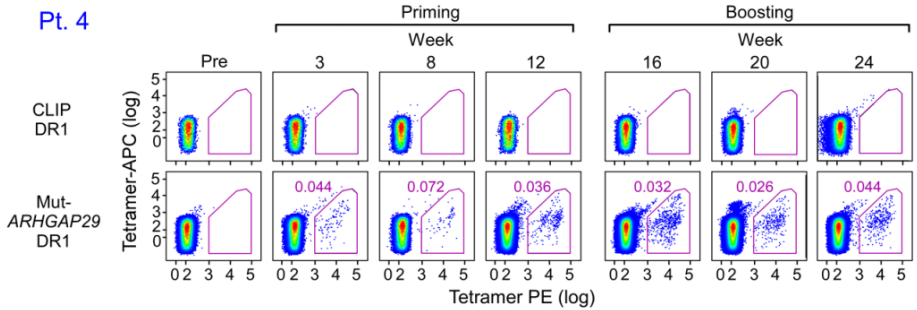


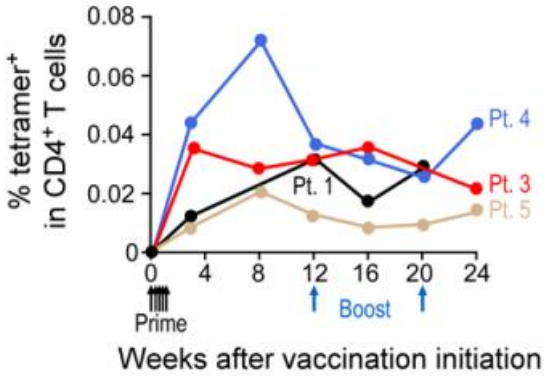
4) CR after Vax + anti-PD-1



Ott et al *Nature* 2017

Transcriptional profile of neoantigen-specific T cells over the course of vaccination





Hu Z & Leet DE *Nat. Med.*, 2021

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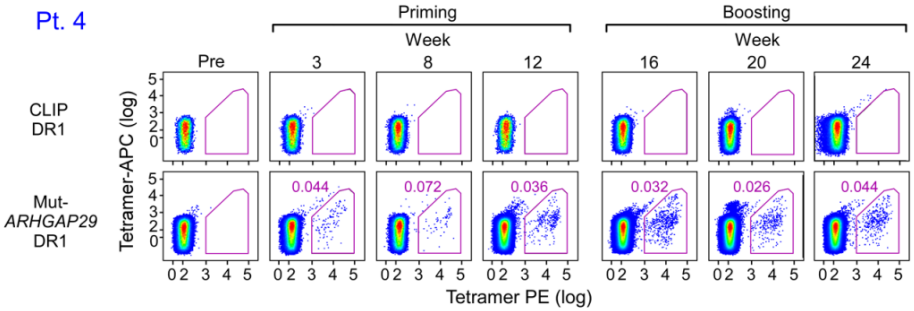

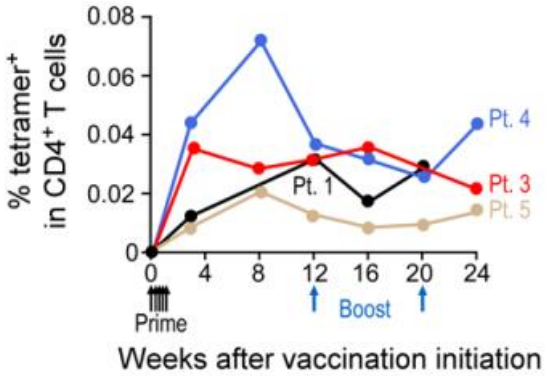

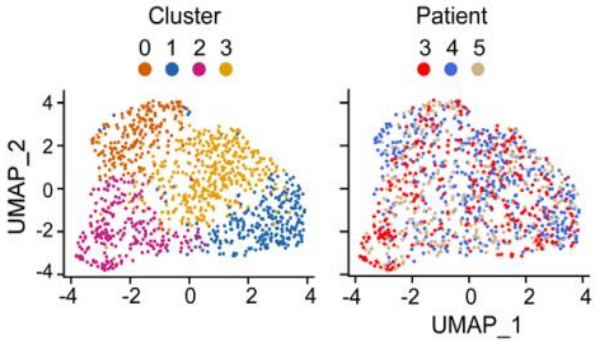

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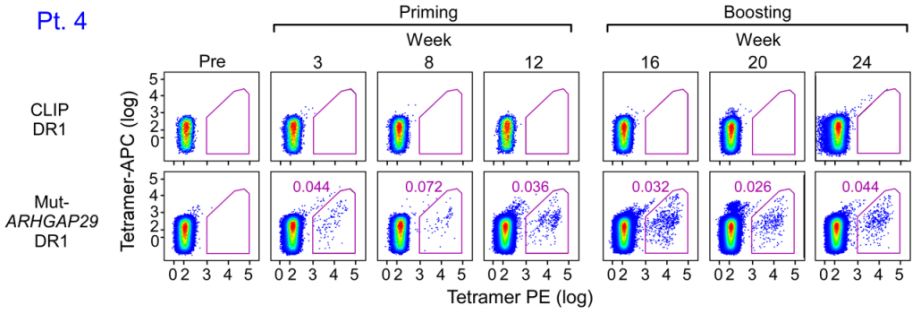
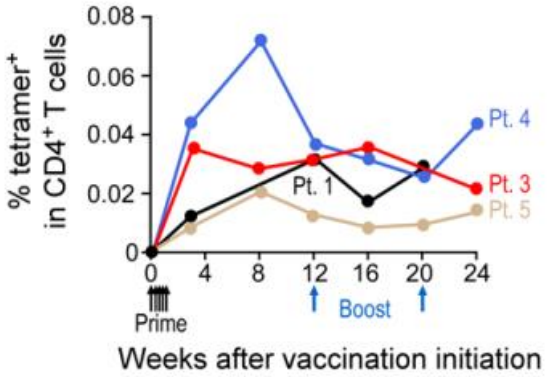
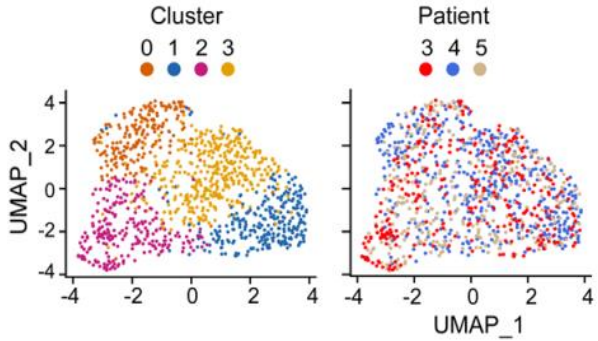
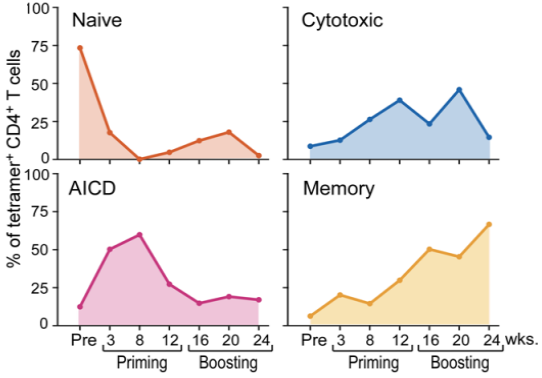


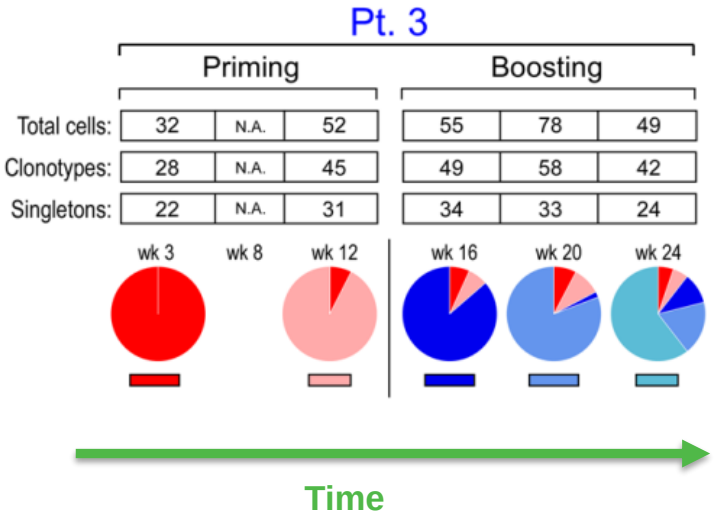


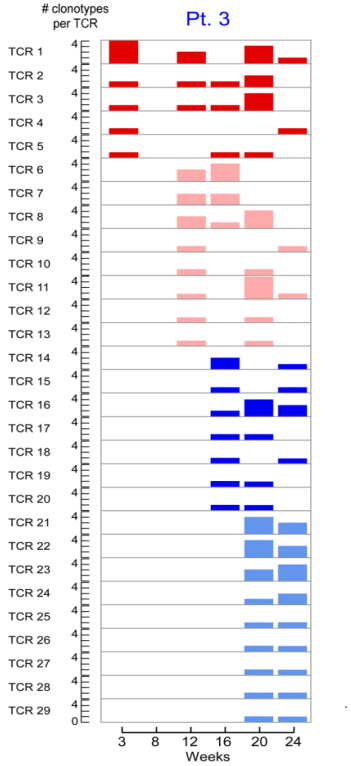




Hu Z & Leet DE *Nat. Med.*, 2021

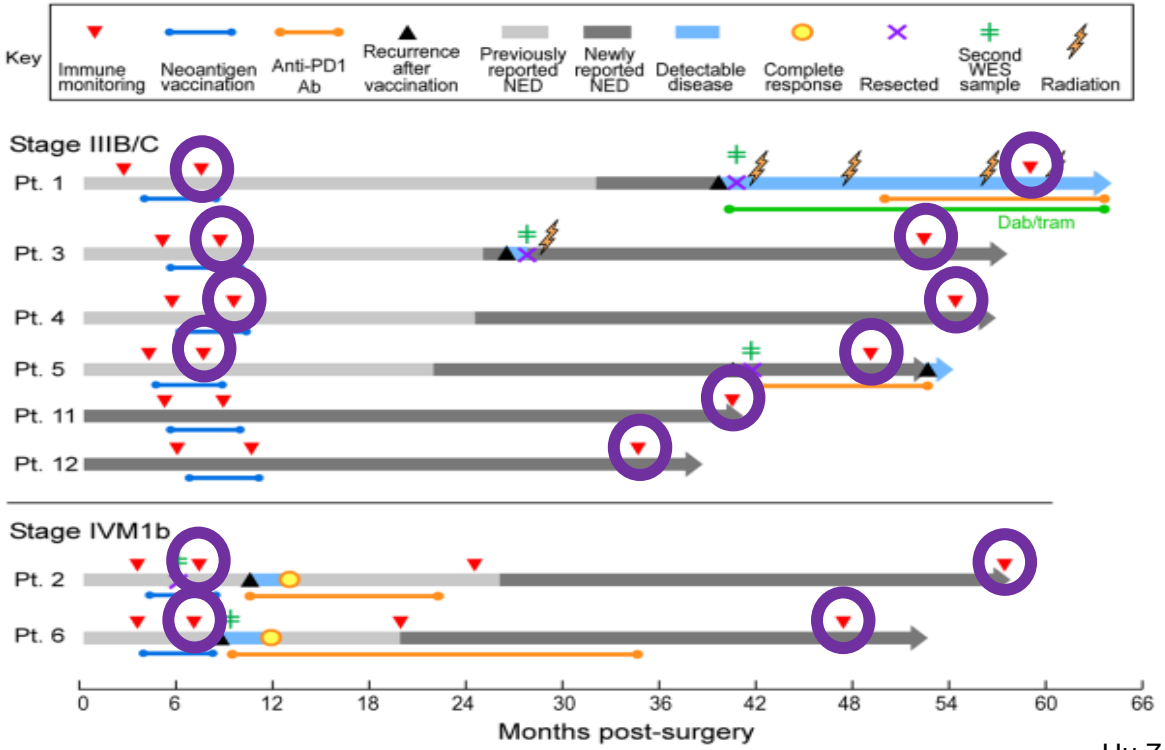
The TCR repertoire diversifies over time after vaccination





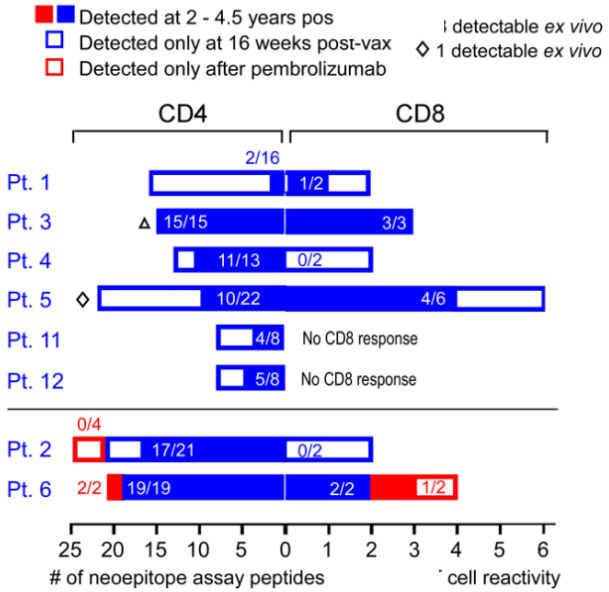
Hu Z & Leet DE *Nat. Med.*, 2021

Clinical Course of Patients with High Risk Melanoma (Long-term)



Hu Z & Leet DE *Nat. Med.*, 2021

Vaccine-induced neoantigen specific T cells persist over several years



Hu Z & Leet DE *Nat. Med*., 2021

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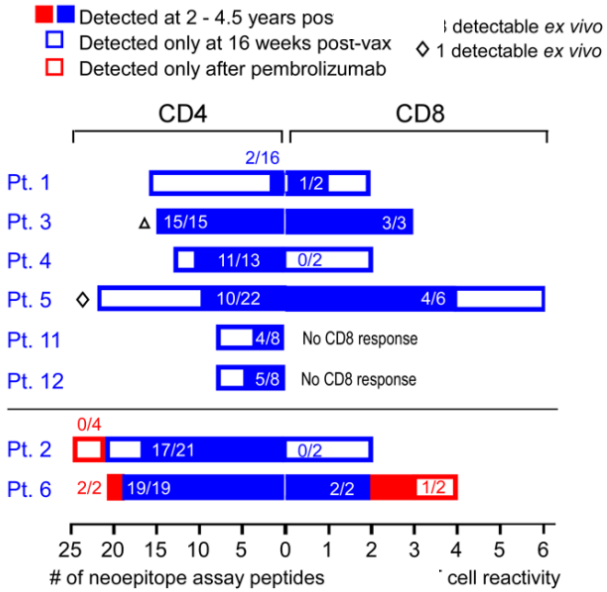
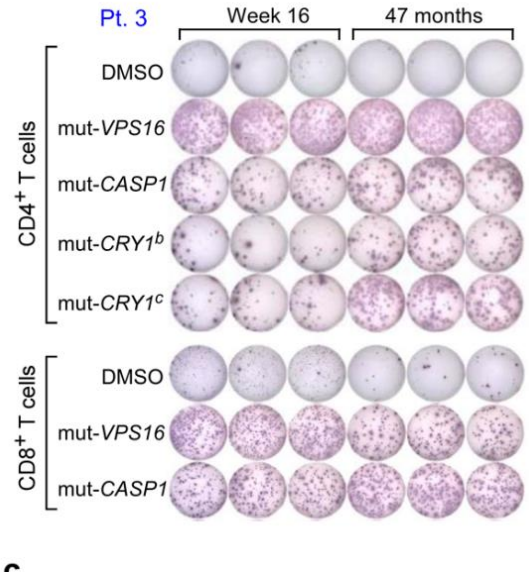
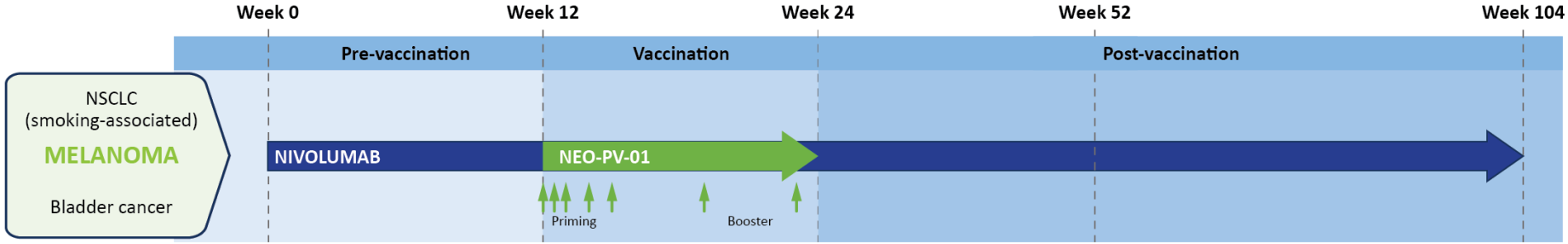




Hu Z & Leet DE *Nat. Med*., 2021

NT-001: Personalized peptide vaccine (PV-01) + Nivolumab in metastatic patients (melanoma, NSCLC, and urothelial cancer)



Ott et al. *Cell* 2020

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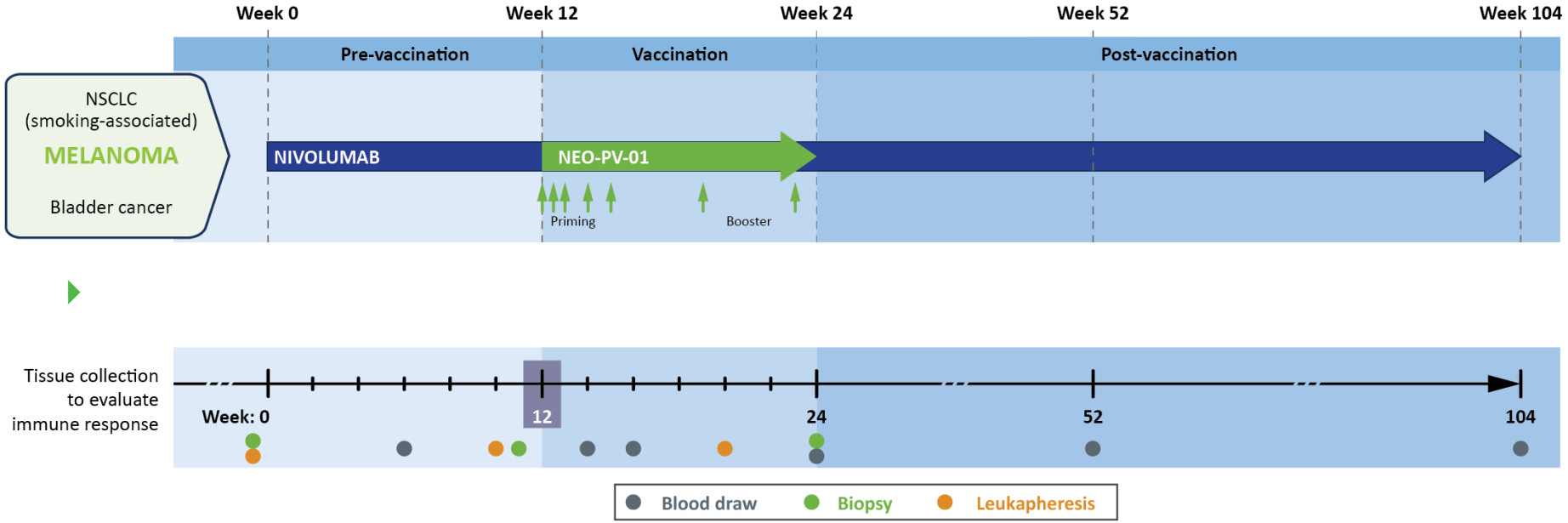
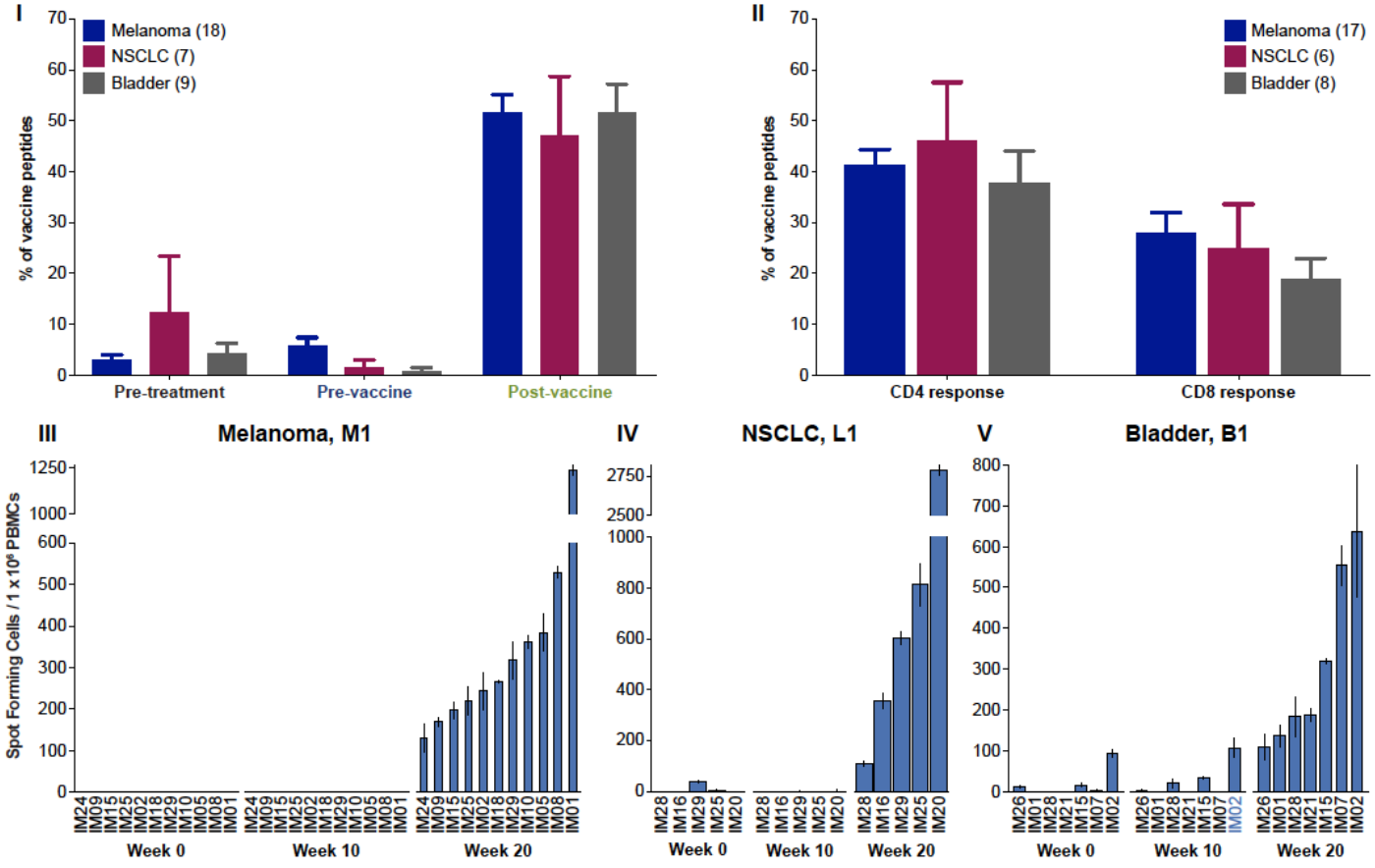


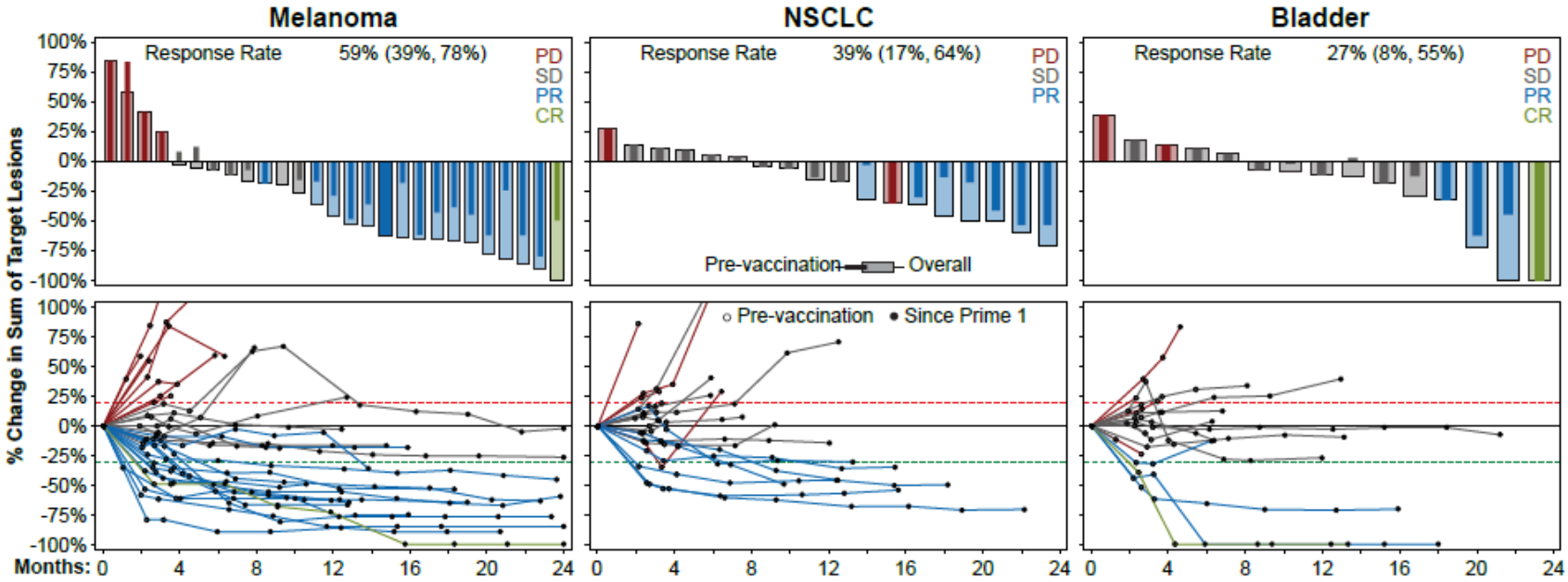
Ott et al. *Cell* 2020

NEO-PV-01 + Nivolumab Induces Neoantigen-Specific Immune Responses



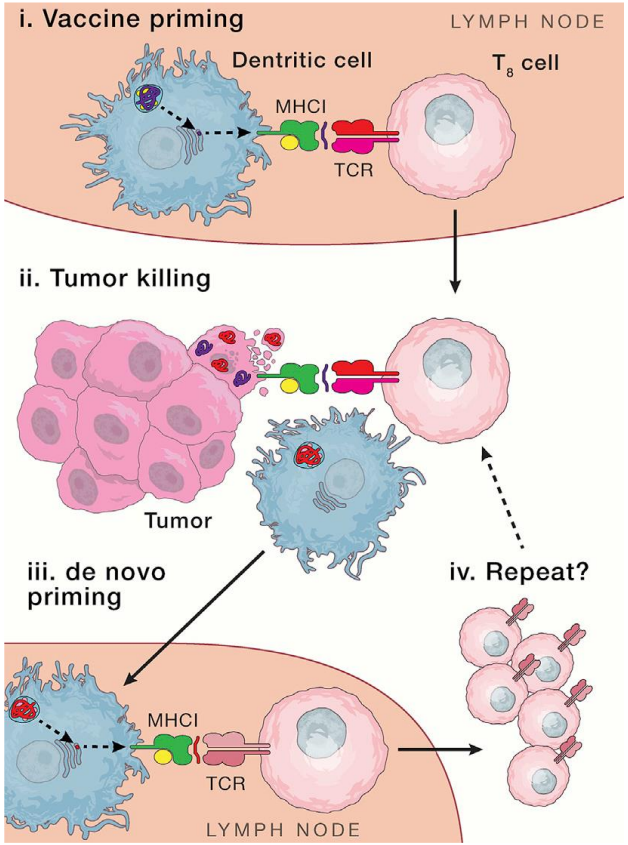
Ott et al. *Cell* 2020

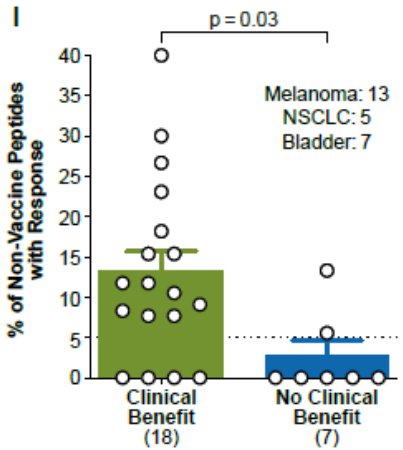
Anti-tumor activity

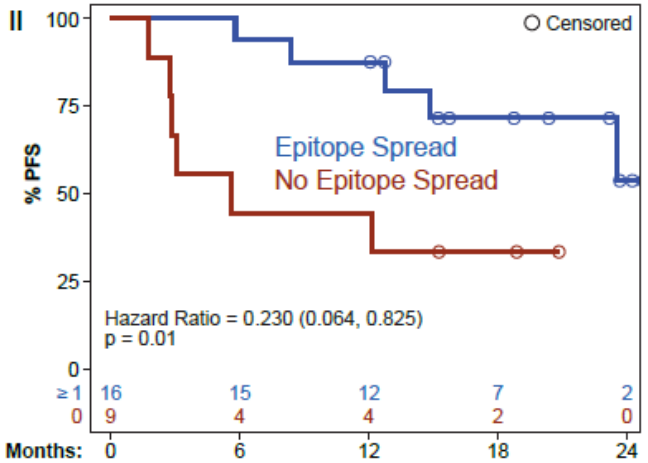


Ott et al. *Cell* 2020

Epitope spreading correlates with durable progression-free survival

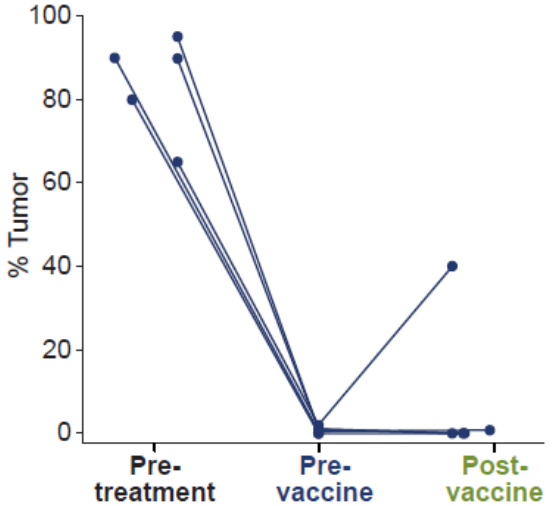






Ott et al. *Cell* 2020

Pathologic response post vaccine is associated with clinical benefit



Ott et al. *Cell* 2020

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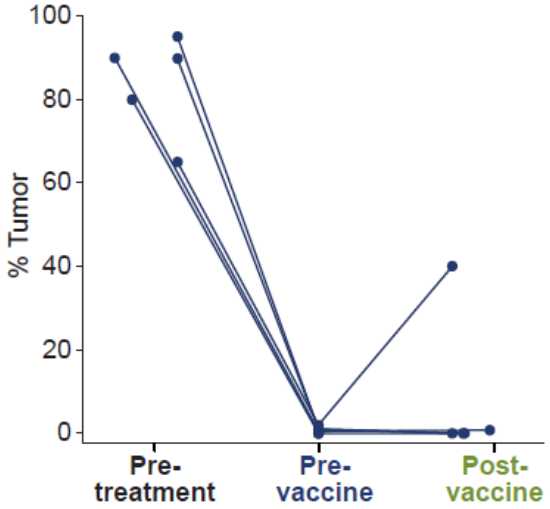

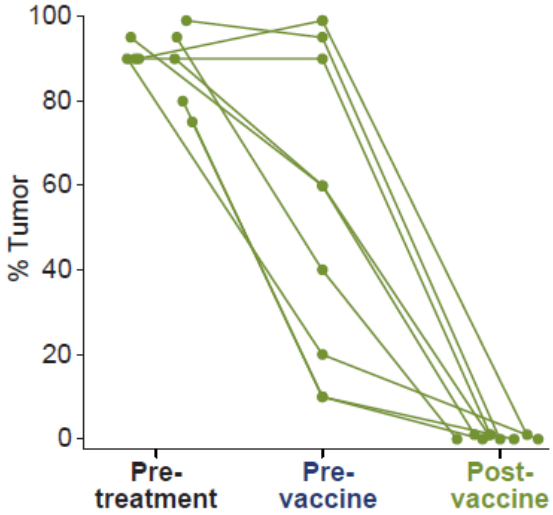

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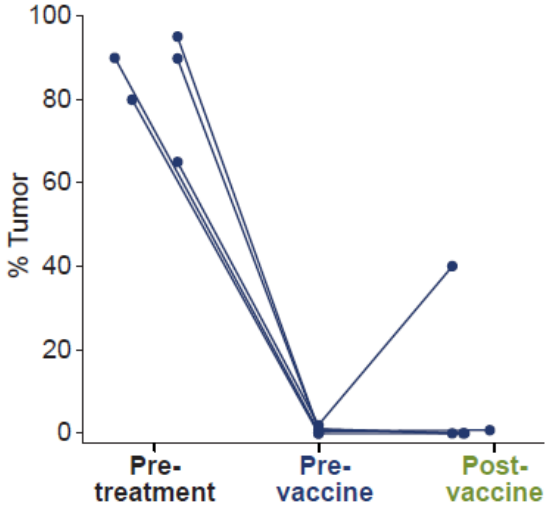
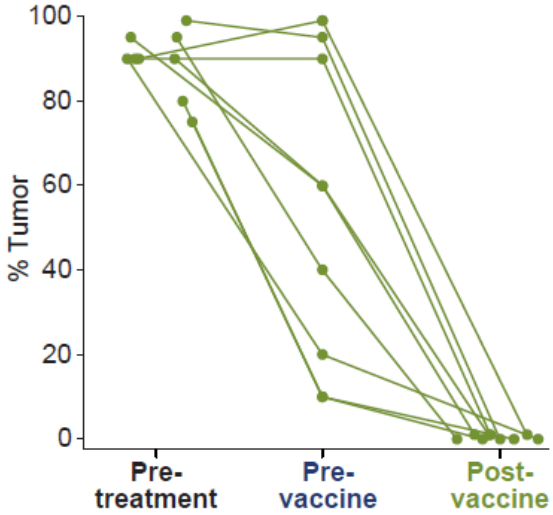
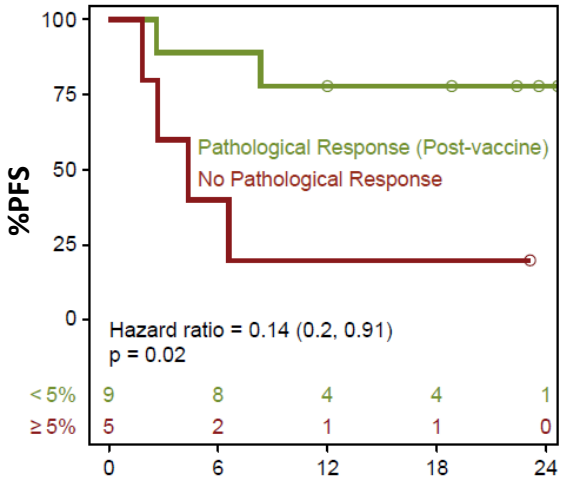


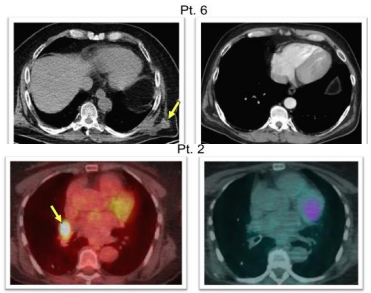




Ott et al. *Cell* 2020

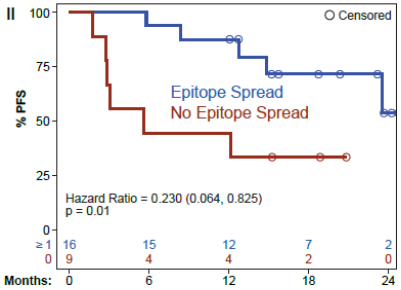
Encouraging signals for efficacy, however no definitive data … until recently

CRs with α-PD-1 post long peptide Vax in Melanoma



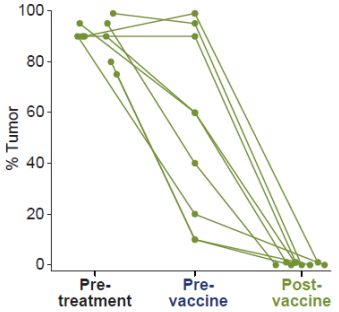
Ott & Hu, *Nature* 2017

Epitope Spreading post long-peptide Vax in mel, NSCLC, bladder Ca



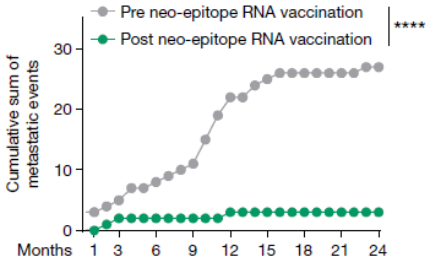
Ott, *Cell* 2020

Path CR post long-peptide Vax in melanoma



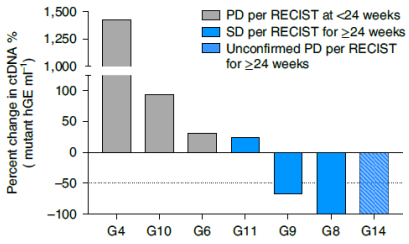
Ott, *Cell* 2020

Decreased Recurrences post RNA Vax in Melanoma



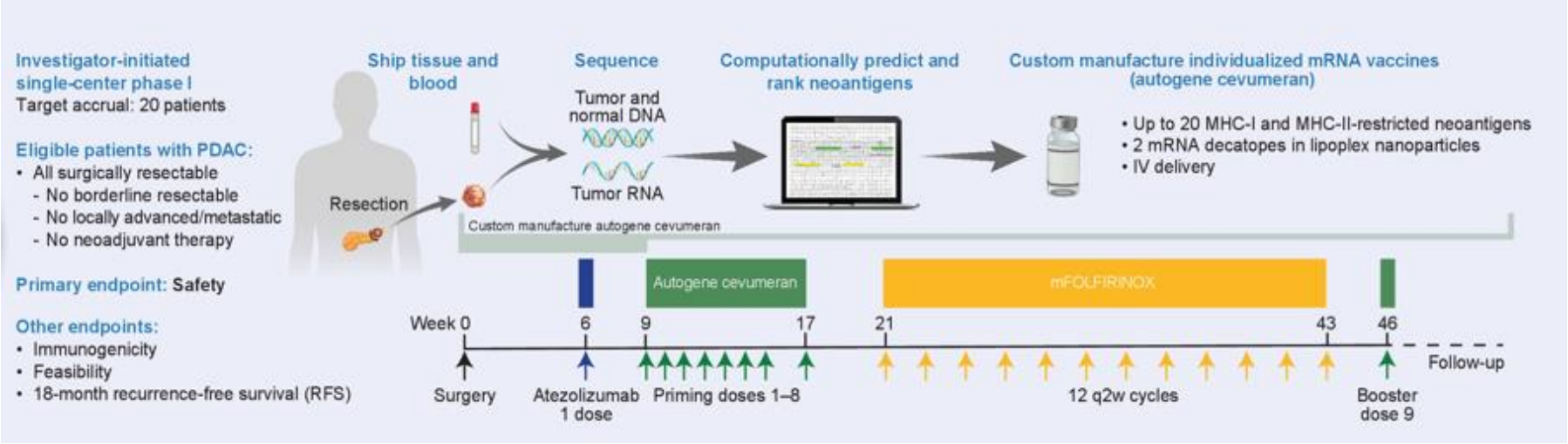
Sahin, *Nature* 2017

CRs by ctDNA post Vax in colorectal ca



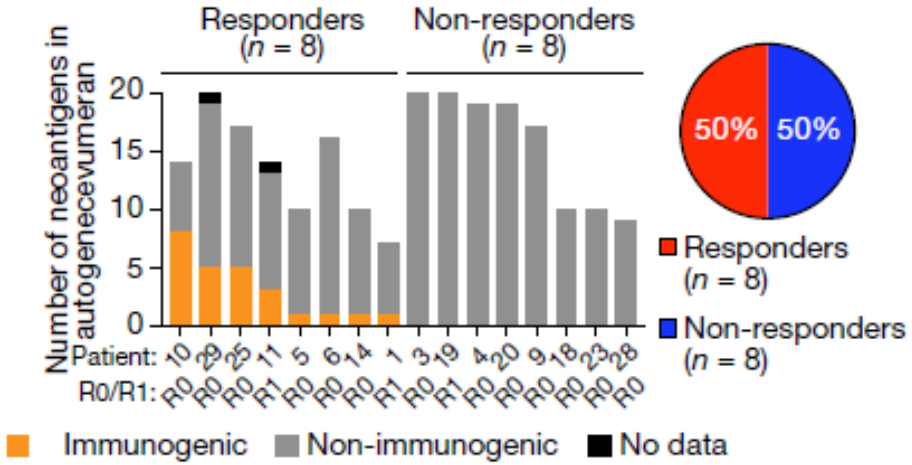
Palmer, *Nat. Med* 2022

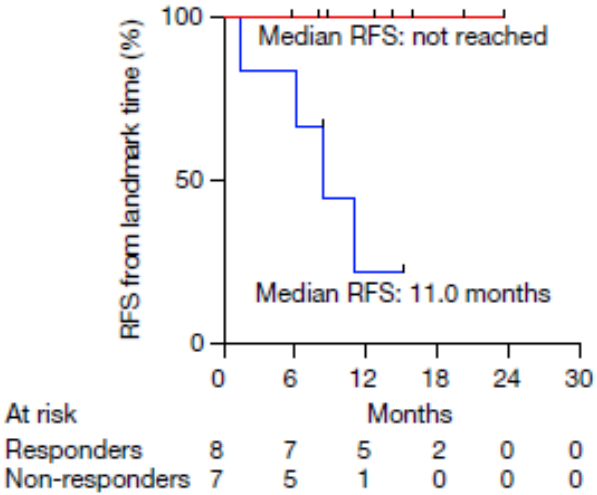
Personalized Neoantigen RNA vaccine autogene cevumeran in patients with resectable pancreatic ductal carcinoma (PDAC)



Balachandran et al, *ASCO Annual Meeting*, 2022

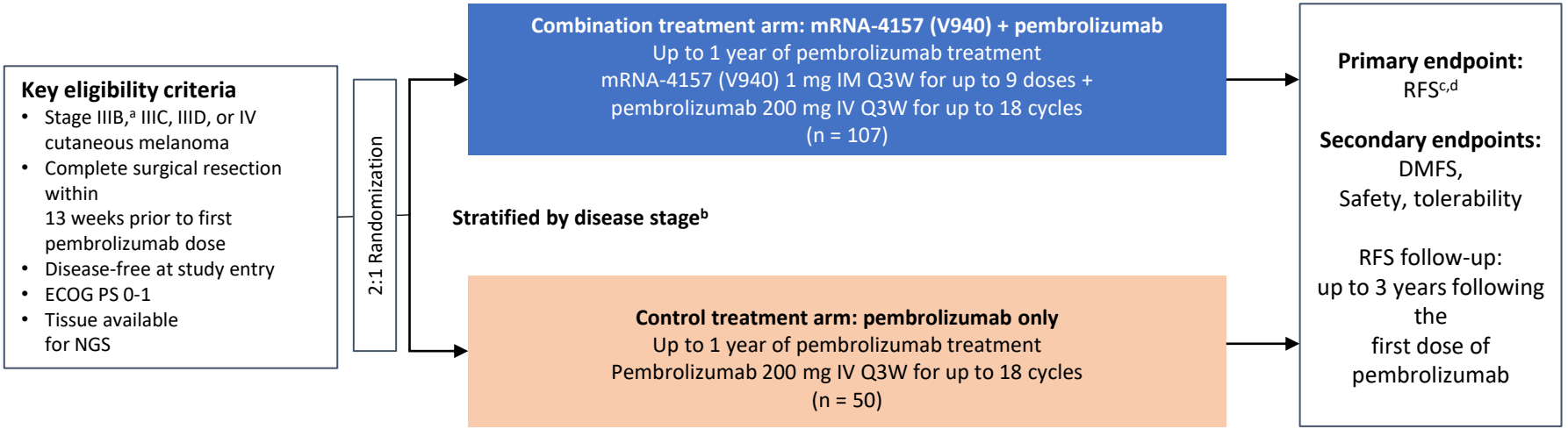
T cell immunity induced with a Personalized RNA vaccine + Atezolizumab + mFOLFORINOX correlates with delayed recurrence





Rojas LA, *Nature*, 2023

And now a randomized Phase 2 trial: mRNA-4157 (V940) + pembrolizumab vs. Pembrolizumab alone

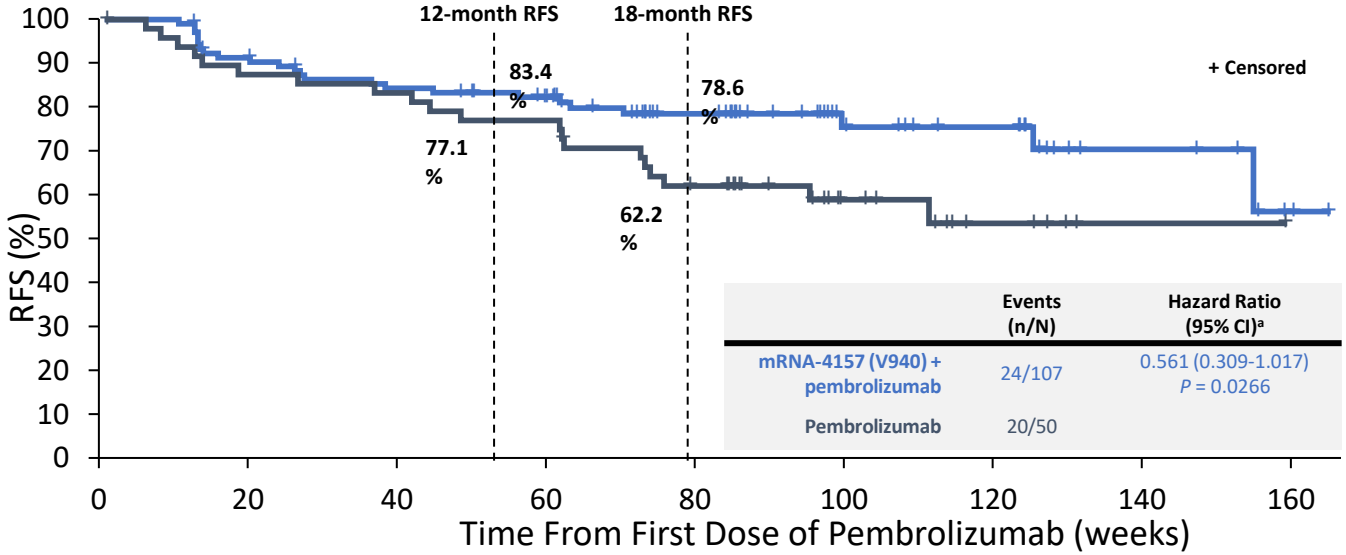


Designed with 80% power to detect an HR of 0.5 with ≥40 RFS events (with 1-sided alpha of 0.1)

Median follow-up[e]: 23 months for mRNA-4157 (V940) + pembrolizumab
24 months for pembrolizumab only

Khattak, *AACR*, 2023

mRNA-4157 (V940) and pembrolizumab combination treatment demonstrated a statistically significant and clinically meaningful RFS improvement



Number at Risk									
mRNA-4157 (V940) + Pembrolizumab	107	92	85	73	49	24	20	8	1
Pembrolizumab	50	42	40	37	28	13	6	1	0

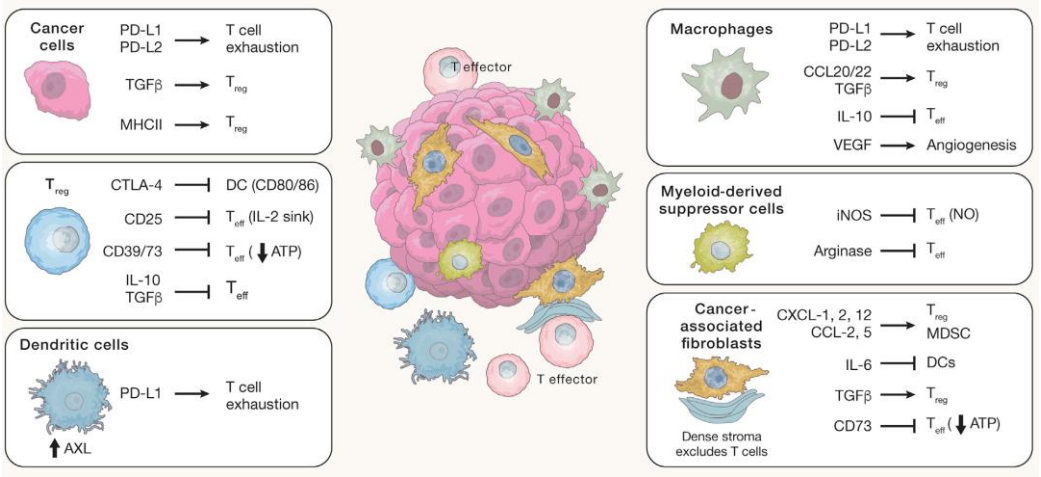
Khattak, *AACR*, 2023

Challenges/opportunities

- Time and Cost
- Magnitude and Quality of Vaccine-induced Immune responses
  - Improve vaccine formulation/immune adjuvant
  - Enhance T cell priming

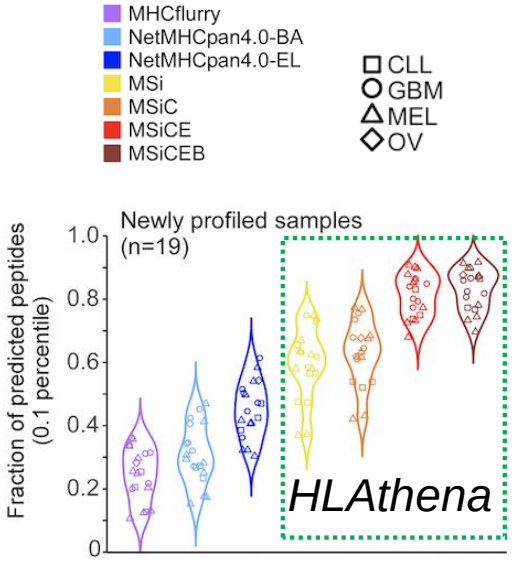
Challenges/opportunities

- Time and Cost
- Magnitude and Quality of Vaccine-induced Immune responses
  - Improve vaccine formulation/immune adjuvant
  - Enhance T cell priming
- “Manage” the TME



Challenges/opportunities

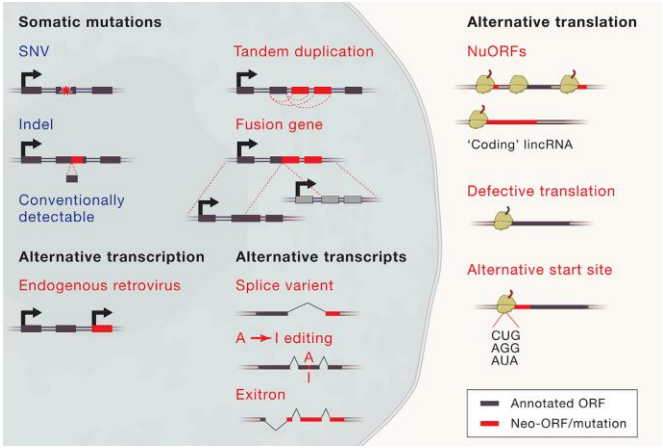
- Neoantigen discovery
  - What are the most immunogenic tumor neoantigens?



9-38%increase in peptide identifications with MSEC

Challenges/opportunities

- Neoantigen discovery
  - What are the most immunogenic tumor neoantigens?
  - Can we increase the neoantigen discovery space?



Sellars, *Cell*, 2022

BLAVATNIK FAMILY FOUNDATION

Melanoma Research Alliance

National Heart Lung and Blood Institute
People Science Health

PARKER INSTITUTE for CANCER IMMUNOTHERAPY

THE BRIDGE PROJECT

THE G. HAROLD AND LEILA Y. MATHERS FOUNDATION

NATIONAL CANCER INSTITUTE

Ben and Catherine Ivy Foundation

Emerson Collective

Catherine Wu lab

Zhuting Hu
Donna Leet
Ed Fritsch
Giacomo Olivera
Sachet Shukla
Jing Sun
Wandi Zhang
Pavan Bachireddy
Satyen Gohil
Patrick Lee

DFCI Translational Immunogenomics Laboratory

Derin Keskin
Ken Livak
Shuqiang Li
Juliet Forman
Teddy Huang

Beth Israel Deaconess Medical Center Boston, Center for Virology and Vaccine Research

Dan Barouch
Jinyian Liu
Lauren Peter

Novo Nordisk Foundation Center for Protein Research, Copenhagen, Denmark

Lars Olsen
Rosa Allesoe

DFCI Department of Cancer Immunology and Virology

Kai Wucherpfennig
Adrienne Luoma
Jason Pyrdol

DFCI Center for Immuno-Oncology

Scott Rodig
Zoe Ciantra
Mohamed Uduman

DFCI Clinical Team

David Reardon
Elizabeth Buchbinder
Charles Yoon
Oriol Olive

DFCI Biostatistics

Donna Neuberg
Anita Giobbie-Hurder

Broad Institute

Nir Hacohen
Liudmilla Elagina
Gaddy Getz

Neon/BioNTechUS Team

Lakshmi Shrinivasan
Richard Gaynor

Immuno-Oncology & Cancer Vaccine Programs

Dr. Khursheed Anwer, PhD, MBA
CSO IMUNON

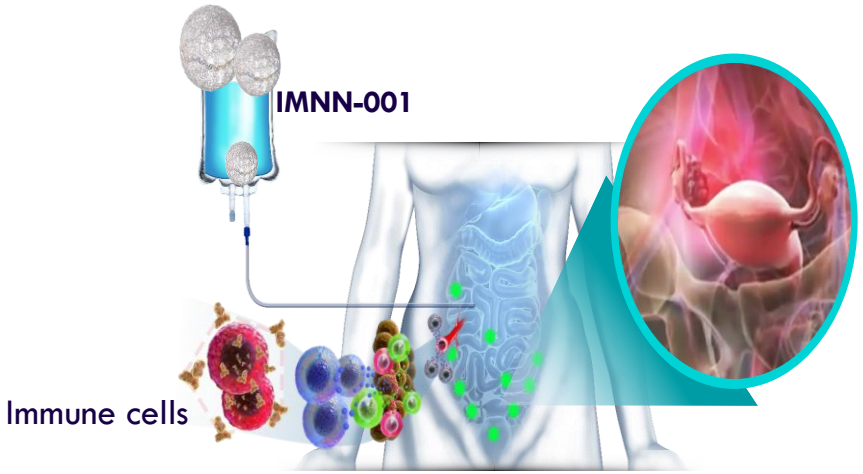
IMUNON's Immuno-Oncology & Cancer Vaccine Programs

DNA-based Technology Independent of Viruses or Devices for Delivery

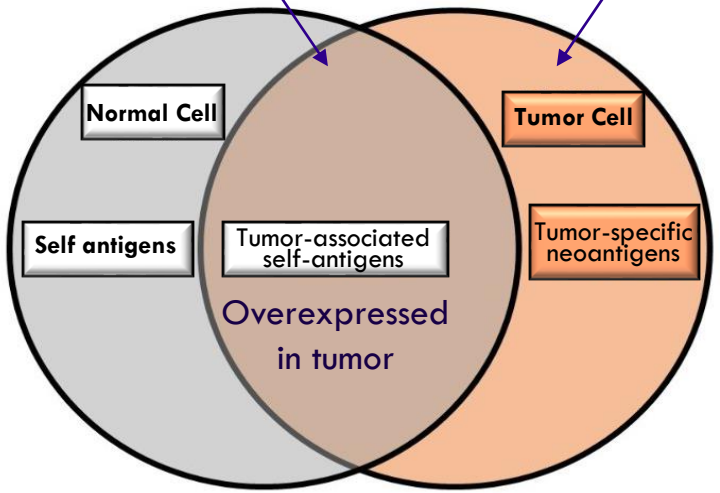
TheraPlas
Immune Modulation by Cytokine Therapy
IMNN-001

FixPlas
Tumor-Associated Antigen Vaccines

IndiPlas
Neoantigens (personalized vaccines)



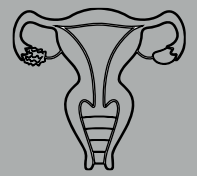
Persistent Local Delivery of IL-12 for Modulating the TME



IMNN-001 – Persistent Local Delivery of IL-12 with Formulated Plasmid

First Target: Epithelial Ovarian Cancer

- Insidious disease – late-stage diagnosis
- High recurrence rate – poor survival
- Novel approaches warranted



IMNN-001

- A gene therapy product for safe and effective delivery of IL-12
- IL-12, a powerful immune agent, a "Master Switch" to the body's innate and adaptive immune system
- A safe alternative to rIL-12 therapy that is short-lived and exerts serious systemic toxicity

IMNN-001 Clinical Development

- Five completed clinical trials- newly diagnosed/recurrent disease
- Safety, clinical activity and biological activity in Phase 1 studies
- A Phase 2 trial (OVATION-2) offer hopes for OC patients; data read 2Q 2024
- One recently activated trial explores IMNN-001combination with antiangiogenic agents

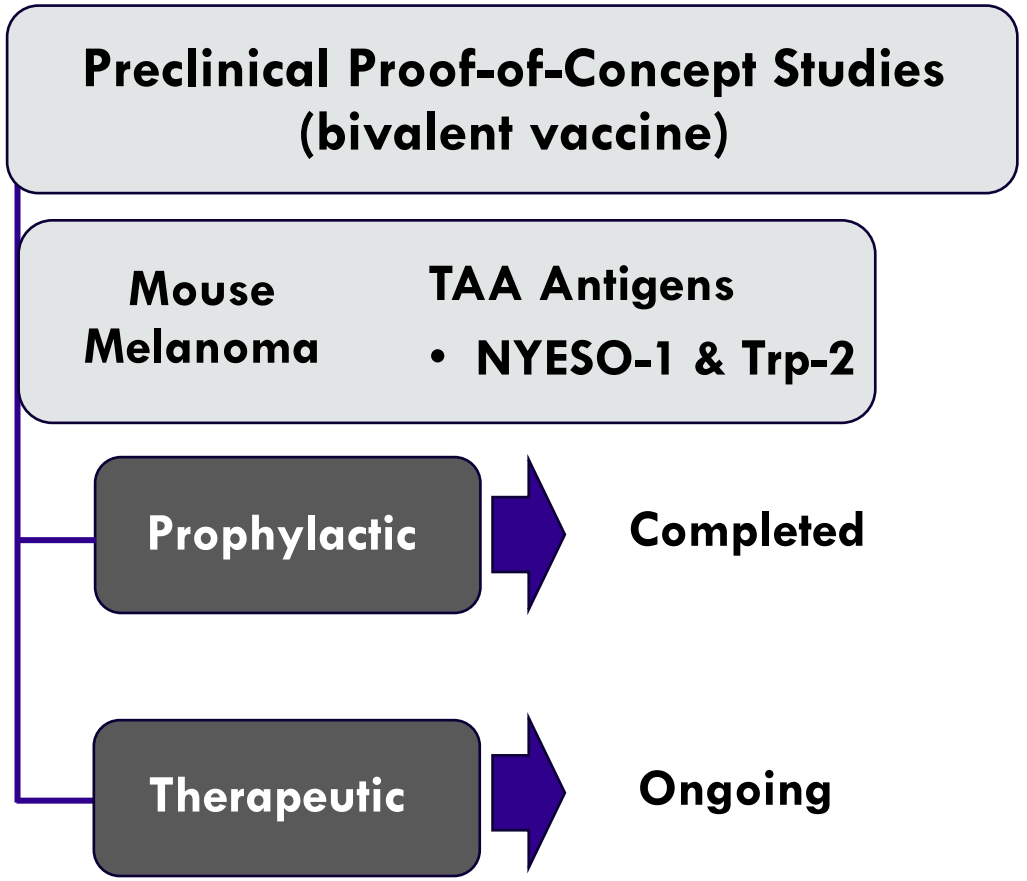
FixPlas: Cancer Vaccines

Targeting Tumor-Associated Antigens (TAAs) – Monovalent and Bivalent

DNA Vaccines

Strong Cellular Responses
(Advantage over protein/mRNA)

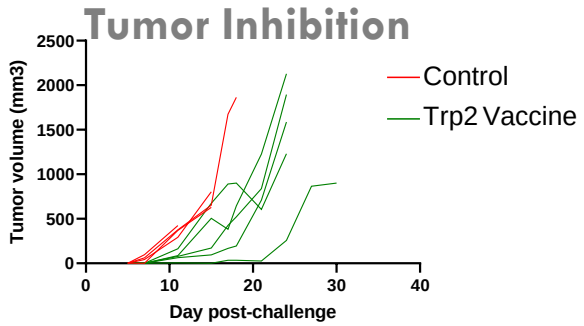
Well Suited for Cancer Therapy

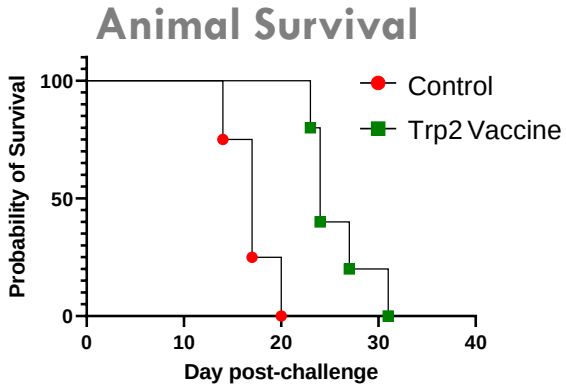


FixPlas Prophylactic-

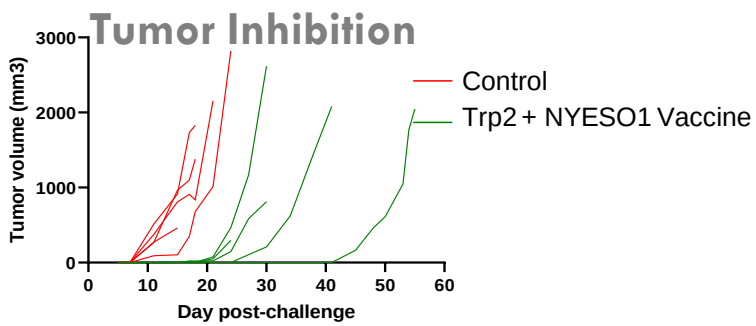
Tumor Inhibition & Survival Improvement – Trp2/NYESO1, B16F10 Melanoma

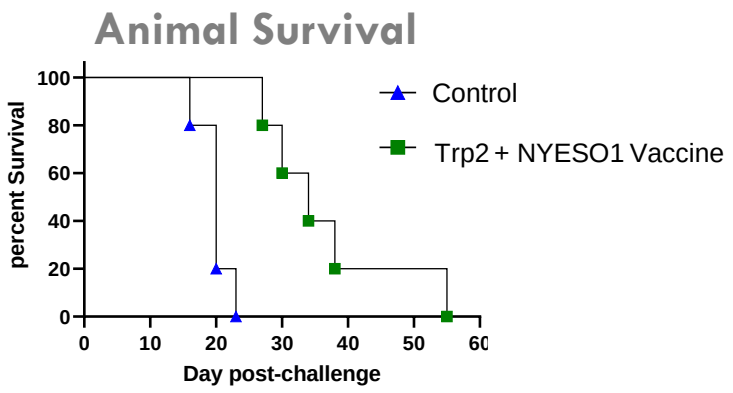
Monovalent Trp2 Vaccine
(Formulated Trp2 plasmid)



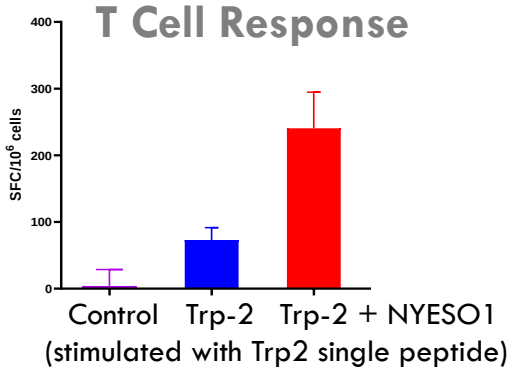


Bivalent Trp2 + NYESO1 Vaccine
(Formulated Trp2 + NYESO1 plasmid)

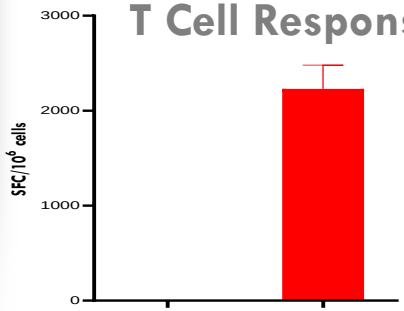




Monovalent & Bivalent
(Formulated plasmid)



(stimulated with Trp2 single peptide)



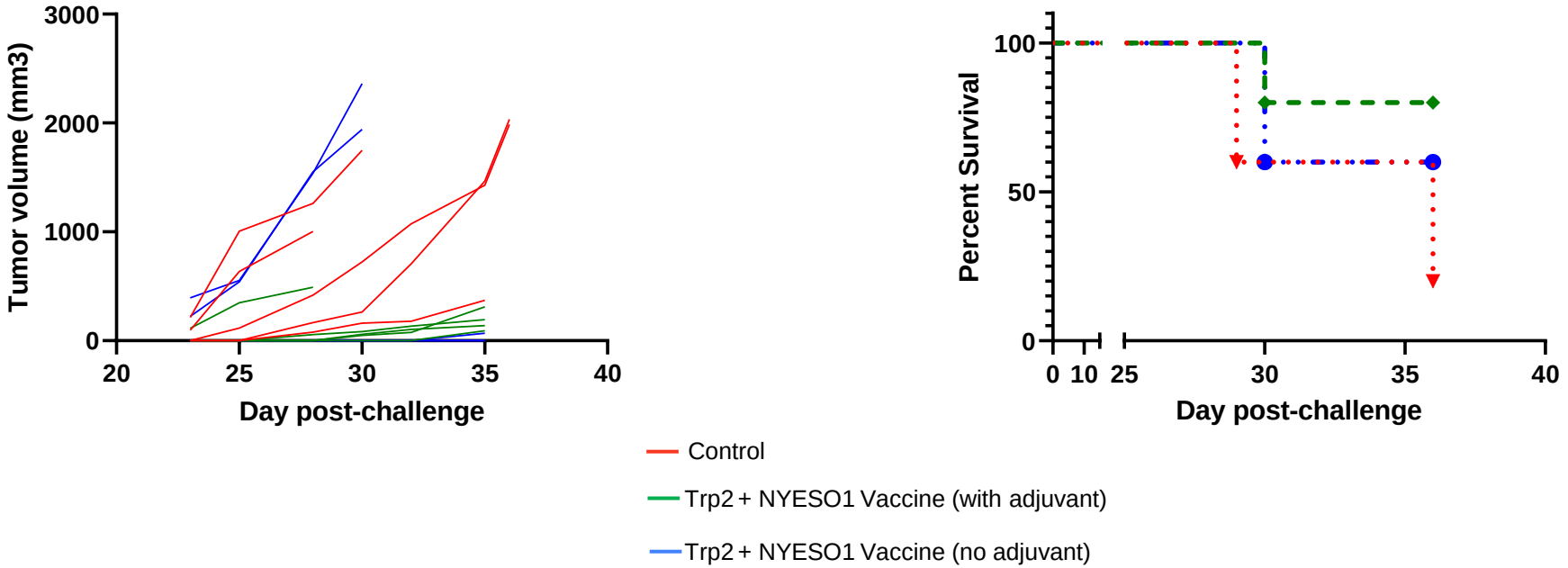
(stimulated with NYESO-1 peptide pool)

Vaccination Followed by Trp2 and NYESO1 Expressing B16F10 Tumors

FixPlas Therapeutic-

Tumor Inhibition & Survival Improvement

Bivalent Trp2 + NYESO1 Vaccine Formulation



B16F10-Trp2 and NYESO1 Antigens Followed by Vaccination

FixPlas Development Plan

Preliminary Studies Warrant a Product Development Plan

- Selection of the disease target
- Selection of the antigen target(s)
- Optimization of the antigen
- Demonstration of robust anticancer activity
- IND-enabling studies
- Phase 1 clinical trial