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Novavax Data in Support of
2024-2025 Vaccine Update

Robert Walker, MD

5 June 2024

Agenda

- SARS-CoV-2 Surveillance Data
- XBB.1.5 Clinical Trial Data: Study 2019nCoV-313 Part 1
- Nonclinical Data Supporting JN.1 Vaccine Update

Novavax Vaccine Platform

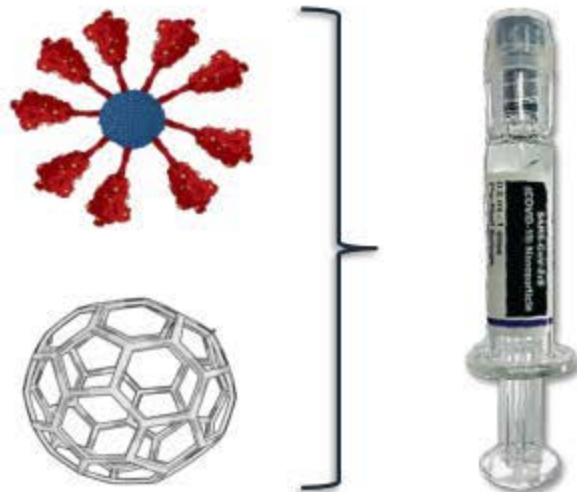
Recombinant protein particle plus Matrix-M™ adjuvant

Recombinant protein particle

- Native 3-dimensional conformation
- Truncated *S. frugiperda* glycans
- Particulate structure facilitates antigen presentation and processing

Matrix-M adjuvant

- Induces robust neutralizing antibodies
- Induces polyfunctional CD4+ Th1
- Supports Fc-mediated immune responses



Novavax vaccine
platform



SARS-CoV-2 Surveillance Data

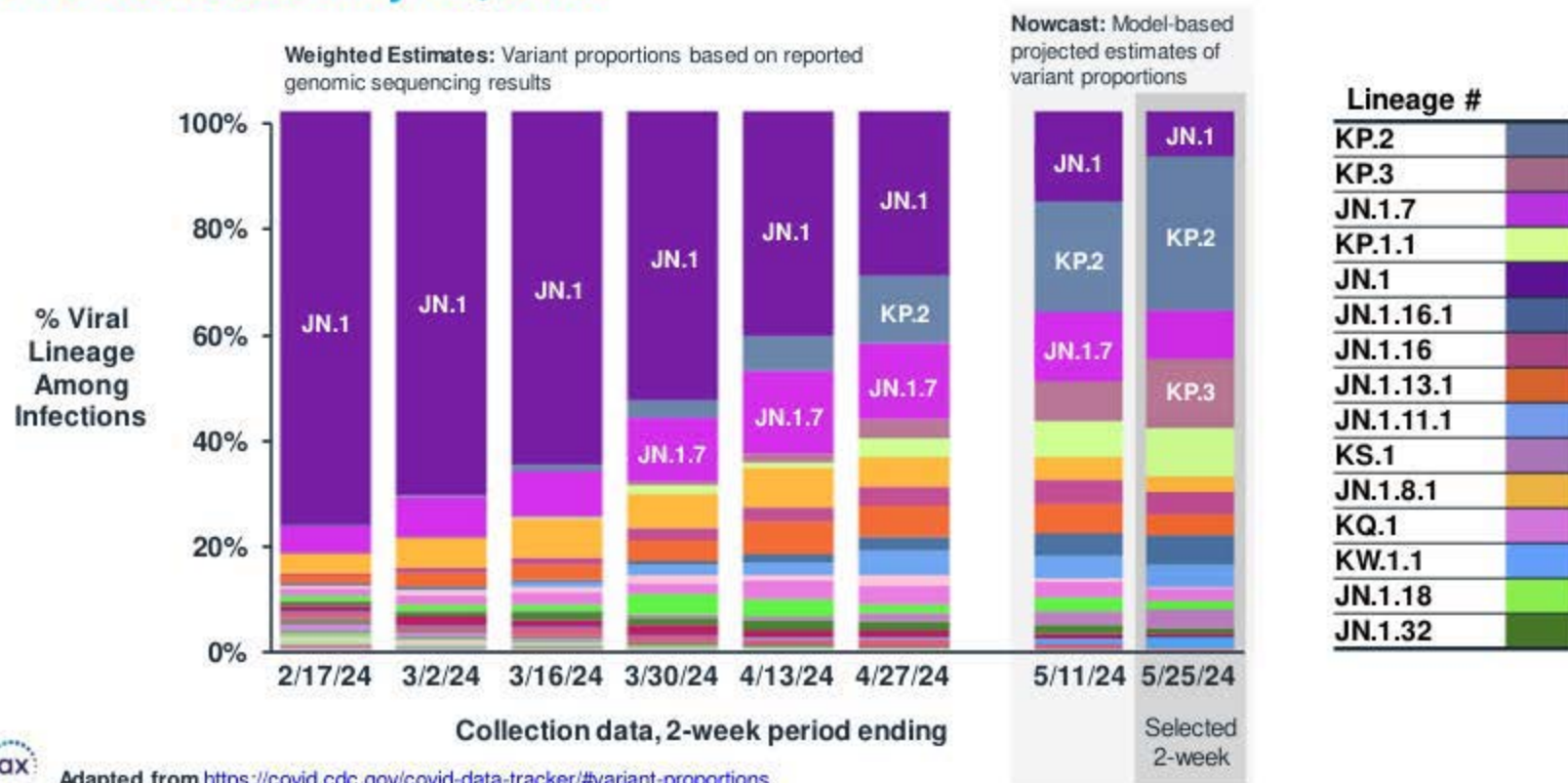
Prevalence of JN.1 Subvariants - US ($\geq 1\%$)

CDC Nowcast: May 25, 2024

WHO Label	Lineage #	% Total	(95% PI)
Omicron	KP.2	28.5%	23.0 – 34.7%
	KP.3	12.7%	7.8 – 19.6%
	JN.1.7	9.2%	7.3 – 11.6%
	KP.1.1	9.2%	6.5 – 12.8%
	JN.1	8.4%	6.8 – 10.3%
	JN.1.16.1	5.4%	3.3 – 8.8%
	JN.1.16	4.2%	2.6 – 6.8%
	JN.1.13.1	4.0%	2.8 – 5.7%
	JN.1.11.1	3.9%	2.6 – 5.9%
	KS.1	3.5%	2.0 – 6.1%
	JN.1.8.1	2.7%	2.0 – 3.6%
	KQ.1	2.2%	1.2 – 4.0%
	KW.1.1	1.7%	0.7 – 4.2%
	JN.1.18	1.7%	1.1 – 2.5%
	JN.1.32	1.0%	0.7 – 1.5%

Circulation of JN.1 Subvariants - US ($\geq 1\%$)

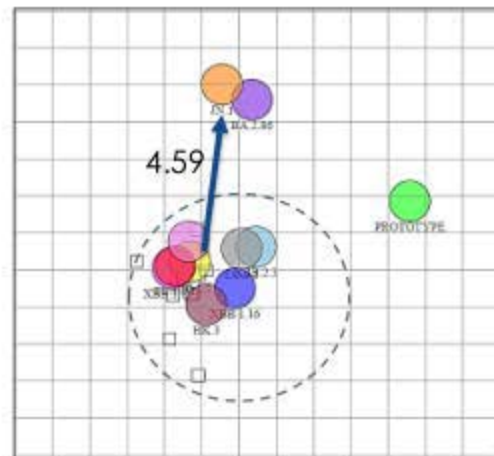
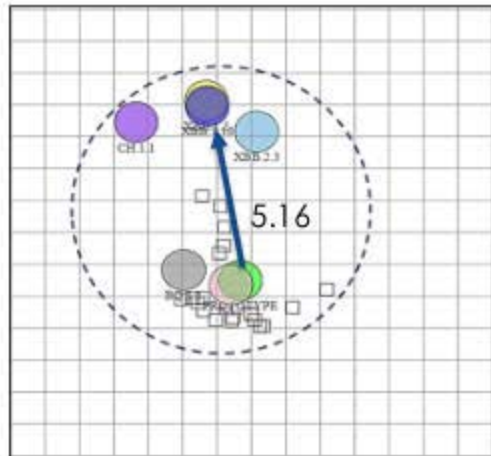
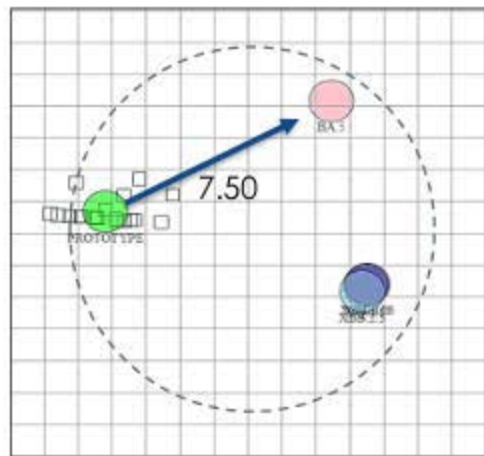
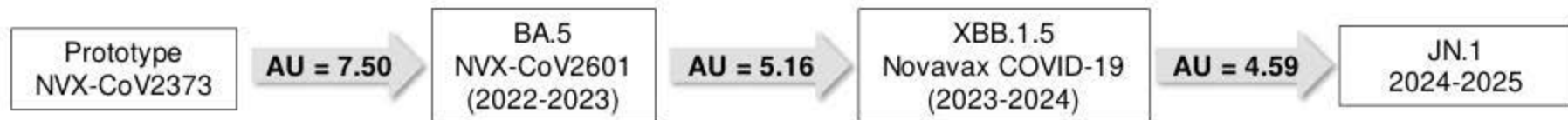
CDC Nowcast: May 25, 2024



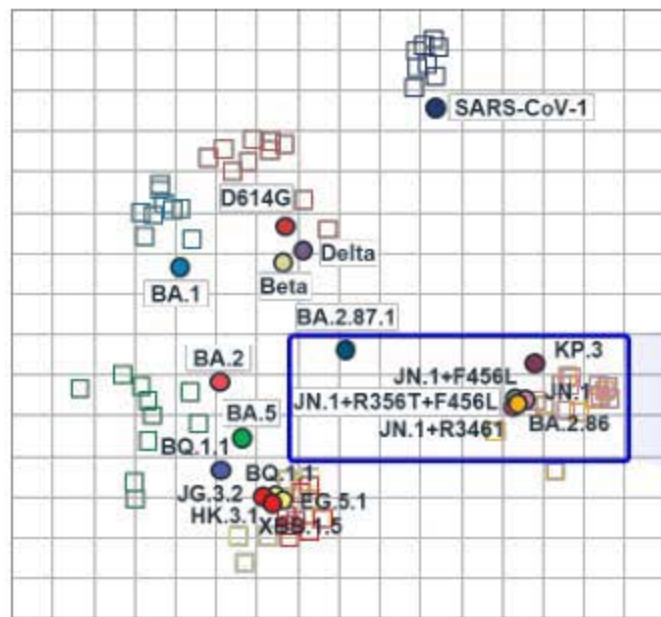
Mutations of Interest

JN.1 subvariants	Examples
JN.1 + F456L (FL)	▪ JN.1.16 ▪ JN.1.11.1
JN.1 + R346T (RT)	▪ JN.1.18 ▪ JN.1.13.1 ▪ KQ.1
JN.1 + R346T + F456L (FLiRT)	▪ KP.2 ▪ KP.1.1
JN.1 + R346T + F456L + T572I (FLiRTTI)	▪ KZ.1.1.1
JN.1 + F456L + Q493E (FLuQE)	▪ KP.3

Vaccine Has Previously Been Updated When Difference Between Vaccine Strain and Dominant Variant > 4 AU



Antigenic Cartography Presented by World Health Organization April 26, 2024



Current circulating variants are antigenically similar



- 2-dose WT 2-dose BA.1 2-dose BA.5
- 2-dose SARS-CoV-1 2-dose XBB.1.5
- 2-dose HK.3 2-dose BA.2.86 2-dose JN.1

Novavax Data Support a JN.1 Vaccine Update for 2024-2025 Season

- In a previously vaccinated/infected population, minimal differences were observed in neutralizing antibody responses for JN.1 lineage subvariants after receipt of Novavax XBB.1.5 vaccine
- JN.1 vaccine generates broad neutralizing responses for JN.1-lineage subvariants in non-clinical models
- JN.1 vaccine also induces a polyfunctional, Th1-biased T-cell response that recognizes conserved T-cell epitopes across variants

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Data from XBB.1.5 Clinical Trial: Study 2019nCoV-313 Part 1

XBB.1.5 Clinical Study Design

Type of Trial

- Open label, single arm

Population

- Adults ≥ 18 years of age, male and non-pregnant female, previously vaccinated with ≥ 3 doses of mRNA > 90 days prior to enrollment (n=330); 30 US sites

Intervention

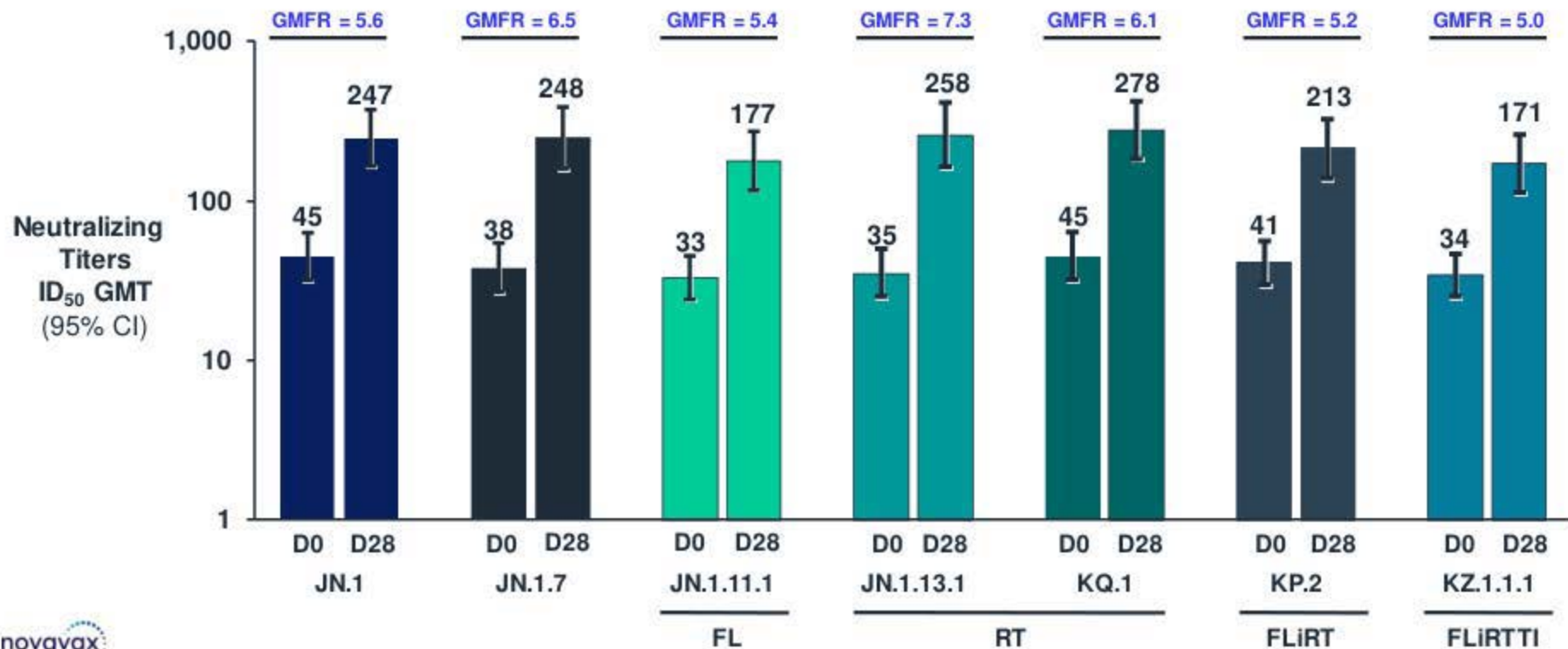
- Single dose NVX-CoV2601 (5 μ g XBB.1.5 Omicron antigen/ 50 μ g Matrix-M Adjuvant) on Day 0

Outcome Measures

- Safety data including reactogenicity for 7 days after vaccination
- Immune response as measured at Day 28 by anti-Spike pseudovirus neutralization titer

Minimal Differences in Antibody Responses for JN.1 Subvariants in Previously Vaccinated/Infected Population

≥ 3 doses Moderna or Pfizer vaccines + single XBB.1.5 Novavax dose (N = 59)

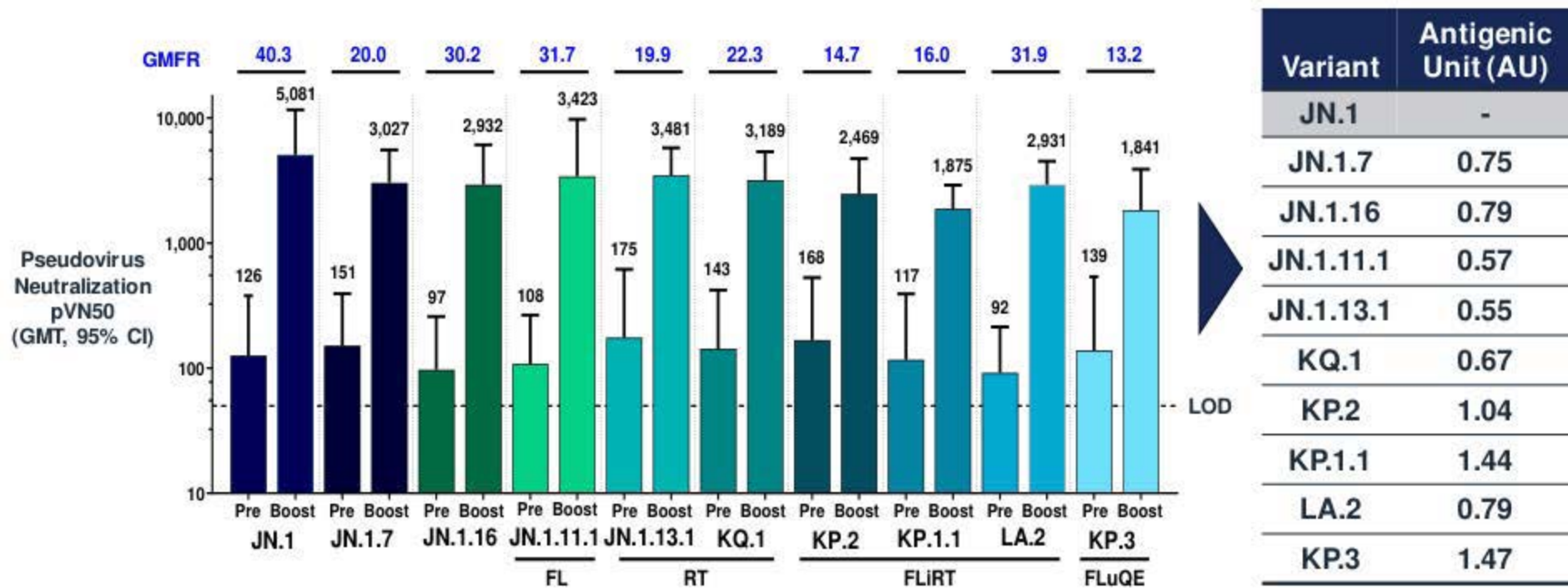


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Nonclinical Data Supporting JN.1 Vaccine Update

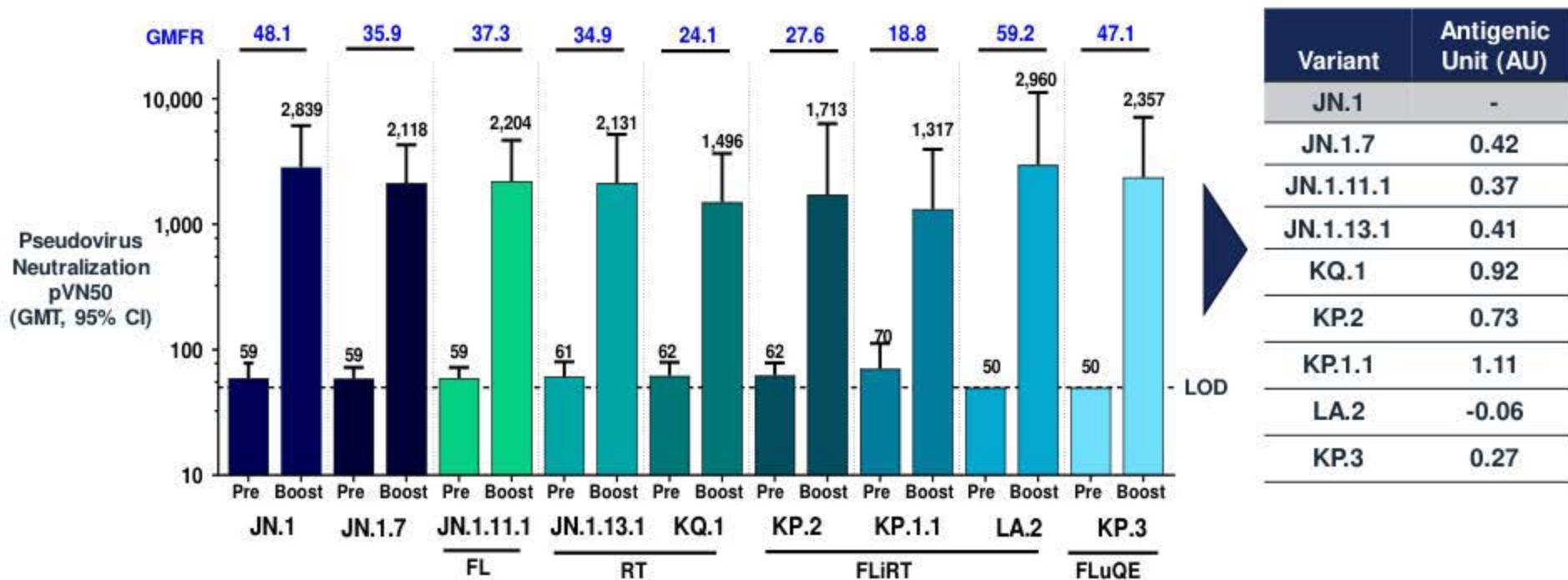
JN.1 Vaccine Induces Broad Neutralizing Responses to All Subvariants Tested

NHPs primed/boosted with XBB.1.5 and additional JN.1 vaccine after 11 months



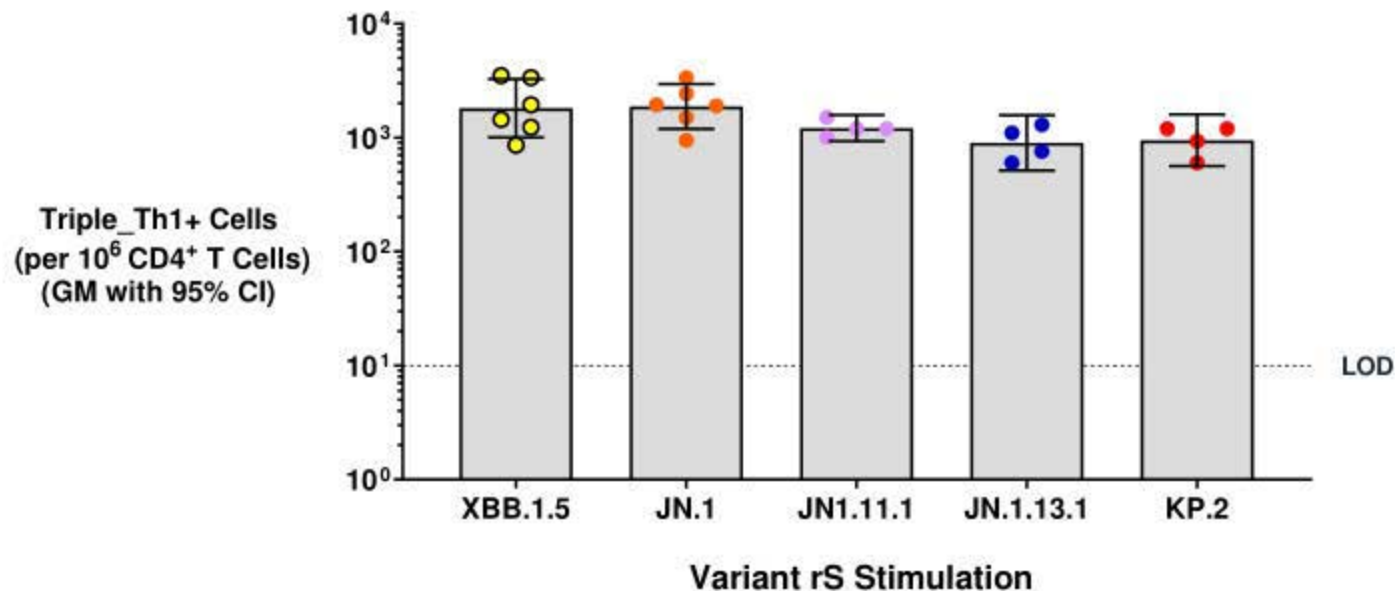
JN.1 Vaccine Induces Broad Neutralizing Responses to All Subvariants Tested

Mice primed with XBB.1.5 and received additional JN.1 vaccine after 2 months



Conserved T-Cell Epitopes Recognized After JN.1 Vaccine Boost in XBB.1.5 Primed Mice

Multifunctional CD4+ T cells Th1 Responses



Novavax Data Support JN.1 Vaccine Update for 2024-2025 Season

- JN.1 vaccine generates broad neutralizing responses for JN.1-lineage subvariants when administered to XBB.1.5-primed animals
 - Including variants with F456L mutation, R346T mutation, and for FLiRT, FLiRTTI and FLuQE variants
- JN.1 vaccine induces a conserved polyfunctional, Th1-biased T-cell response against JN.1-lineage subvariants
- Data support JN.1-lineage vaccine aligned with WHO and EMA recommendations
 - If recommendation precludes use of a JN.1 vaccine, protein-based vaccine will not be available for Fall campaign
- Initial shipments of JN.1 vaccine on track to be in US warehouses in August

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