

Corporate Presentation



February 28, 2022

VAXCYTE
protect humankind™

Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. These statements include, but are not limited to, statements related to the benefits of Vaxcyte's vaccine candidates; demand for Vaxcyte's vaccine candidates; the process and timing of anticipated future development of Vaxcyte's vaccine candidates; the timing and availability of topline data for the VAX-24 Phase 1/2 clinical proof-of-concept study in adults aged 18 to 64; the initiation and timing of the separate Phase 2 study in adults aged 65 and older; the submission of a VAX-24 pediatric IND application; the announcement of guidance for the VAX-XP IND application submission; the announcement of guidance for VAX-A1; the nomination of a final vaccine candidate for VAX-PG; the achievement of future funding milestones; the use and availability of funds from CARB-X; the market opportunity for our vaccines; our expectations regarding the potential benefits, spectrum coverage and immunogenicity of our vaccine candidates; the timing of the initiation, progress and expected results of our preclinical studies, clinical trials and research and development plans; and other statements that are not historical fact. The words "anticipate," "believe," "continue," "could," "designed," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "will," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

These forward-looking statements are based on Vaxcyte's current expectations and actual results and timing of events could differ materially from those anticipated in such forward-looking statements as a result of risks and uncertainties, including, without limitation, risks related to Vaxcyte's product development programs, including development timelines, success and timing of chemistry, manufacturing and controls and related manufacturing activities; Vaxcyte's reliance on third-party manufacturers; potential delays or inability to obtain and maintain required regulatory approvals for its vaccine candidates; the risks and uncertainties inherent with preclinical and clinical development processes; the success, cost and timing of all development activities and clinical trials; sufficiency of cash and other funding to support Vaxcyte's development programs and other operating expenses; and the ongoing COVID-19 pandemic, which could materially and adversely affect Vaxcyte's business and operations. These and other risks are described more fully in Vaxcyte's filings with the Securities and Exchange Commission (SEC), including its Annual Report on Form 10-K filed with the SEC on February 28, 2022 or in other documents Vaxcyte subsequently files with or furnishes to the SEC. Vaxcyte undertakes no duty or obligation to update any forward-looking statements contained in this release as a result of new information, future events or changes in its expectations.

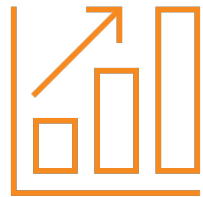
A green-tinted background image showing several large, spherical cells with textured surfaces and prominent nuclei, resembling eukaryotic cells. The cells are arranged in a way that they appear to be floating or interacting. The overall tone is scientific and professional.

VAXCYTE MISSION STATEMENT

We are on a global mission to engineer high-fidelity vaccines that protect humankind from the consequences of bacterial diseases.

Key Corporate Highlights

Clinical-Stage Vaccine Innovation Company – Led by Pneumococcal Conjugate Vaccine (PCV) Franchise



Large market opportunity for PCV franchise

- **Scalable PCV platform** enabling broader-spectrum PCVs: VAX-24 & VAX-XP
- **Lead candidate: VAX-24**
 - 24-valent PCV with potential to replace SOC
 - First participants dosed in VAX-24 Phase 1/2 study announced on 2/23/22
 - **Anticipate Phase 1/2 topline safety, tolerability and immunogenicity results in adults 18-64 by end of 2022⁽¹⁾**



Cell-free Protein synthesis platform

- Leverages **site-specific conjugation**
- Permits production of **“tough-to-make” antigens**
- Demonstrated speed, flexibility and scalability



Disciplined target selection

- Targets **well-defined ~\$7B market segment**
- Honors **well-understood PCV MOA**
- Leverages established **surrogate immune endpoints** and clinical pathways



Robust development pipeline

- Platform unlocks large market opportunities:
 - **VAX-A1:** Novel Group A Strep conjugate vaccine
 - **VAX-PG:** Novel periodontitis therapeutic vaccine



Aligned critical resources

- **Strategic alignment** with Lonza (manufacturing)
- **Seasoned management team**, directors and advisors
- **Cash, cash equivalents and investments of \$273.1M at 12/31/21⁽²⁾**

(1) Guidance provided as of February 28, 2022.

(2) Excludes estimated net proceeds of \$107.6M from 1Q22 public offering.

Experienced Team, Board of Directors and Scientific Advisors

Outstanding Track Record in Vaccines and Biopharma

Management Team

Grant Pickering, MBA
CEO & Co-founder

PROVENGE
(sipuleucel-T)

ZELNATE

Victrio

FLONASE
ALLERGY RELIEF

Jim Wassil, MS, MBA
COO

Pprevnar 13[®]
Pneumococcal 13-valent Conjugate Vaccine
(Diphtheria CRM₁₉₇ Protein)

BEXSERO
Meningococcal Group B Vaccine

MENVEO

RotaTeq

Andrew Guggenhime, MBA
President & CFO

Dermira

Calistoga
Pharmaceuticals

Facet Biotech

Jeff Fairman, PhD
VP Research & Co-founder

ZELNATE

Victrio

Paul Sauer, MBA
SVP PD & Manufacturing

Pulmozyme
dornase alfa INHALATION SOLUTION

Zinbryta
(daclizumab)

Harp Dhaliwal, MBA
SVP Commercial Mfg & Supply Chain

Dermira

MEDIVATION

Biogen

Board of Directors

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IMMUNE DESIGN

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toast moderna

Halley Gilbert, JD

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Plexxikon

Michael Kamarck, PhD

MERCK Wyeth

Teri Loxam, MBA

KiraPharma 科越医药 **MERCK**

Heath Lukatch, PhD

RED TREE
VENTURE CAPITAL

Kurt von Emster

Abingworth
partners in life science investing

Grant Pickering, MBA

VAXCYTE

Scientific Advisory Board

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sanofi pasteur
The vaccines division of sanofi-aventis Group

Tony Ford-Hutchinson, PhD

MERCK

Emmanuel Hanon, PhD

VIONE **gsk** **GlaxoSmithKline**
VACCINES

Bill Hausdorff, PhD

gsk **GlaxoSmithKline**
VACCINES **Wyeth**

Tom Monath, MD

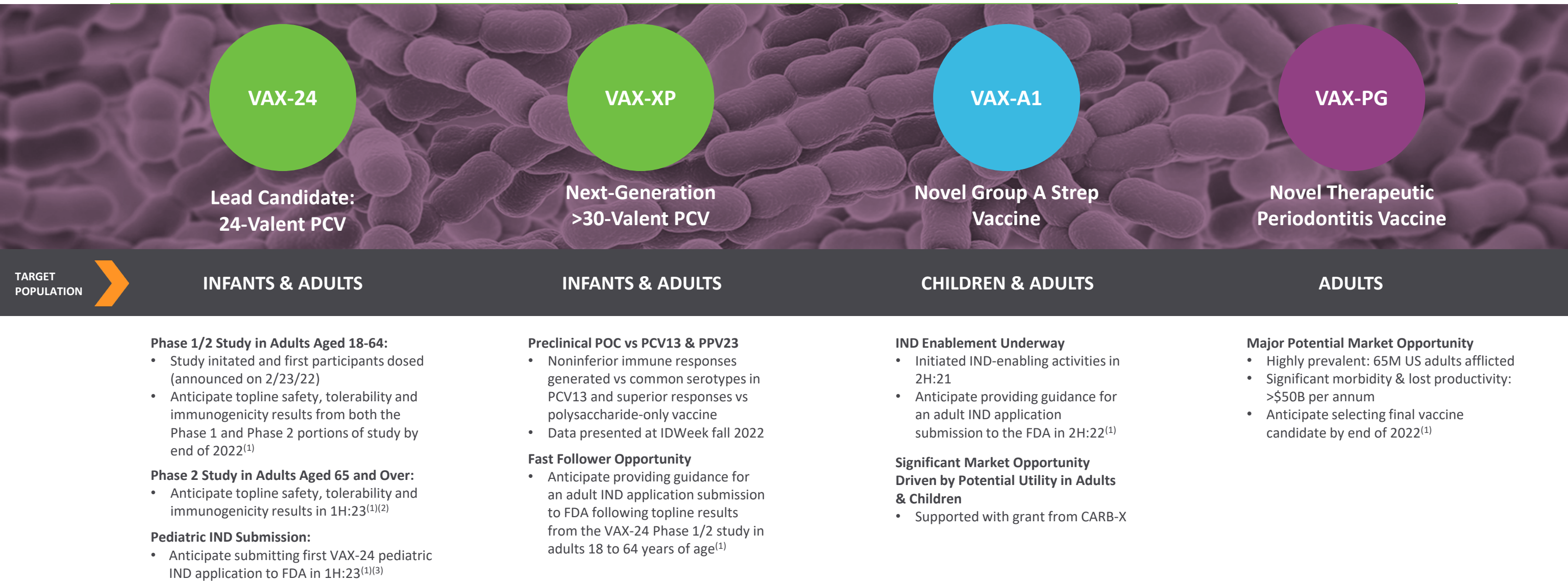
CROZET
BioPharma

Emmanuel Walter, MD, MPH

Duke University
School of Medicine

Pipeline of High-Fidelity Vaccines

Broad-Spectrum Conjugate and Novel Protein Vaccines to Prevent or Treat Bacterial Infectious Diseases



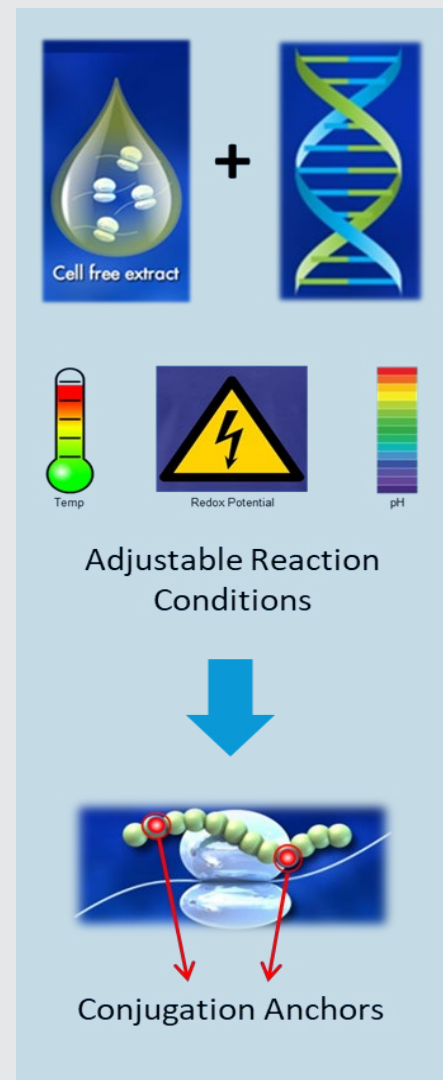
(1) Guidance provided as of February 28, 2022.

(2) Initiation of this separate Ph 2 study in adults 65 and over, as well as the subsequent topline data, is subject to the successful completion of the Phase 1 portion of the VAX-24 Phase 1/2 study in adults 18 to 64 years of age.

(3) Subject to a pre-IND meeting with the FDA and successful topline results from the VAX-24 Phase 1/2 study in adults 18 to 64 years of age.

Cell-Free Protein Synthesis Platform Unlocks Multiple Vaccine Applications

Design and Produce Proteins Beyond Reach of Conventional Methods



CELL-FREE PROTEIN SYNTHESIS

- Transcriptional & translational (ribosomal) machinery from *E coli* stored as a frozen “extract”
- Produces singular protein of interest at high yields
- Enables site-specific conjugation via insertion of multiple nnAA conjugation anchors
- Permits protein production in non-physiological conditions

SPEED, FLEXIBILITY, SCALABILITY

- Rapidly screen vaccine candidates
- Flexible reaction conditions
- Scaled to 1000L using standard equipment

SUPERIOR CONJUGATE VACCINES

- Site-specifically attach antigens onto protein carriers designed to:
 - Enable consistent exposure of T-cell epitopes and/or B-cell epitopes on protein carrier
 - Avoid off-target effects
 - Enable use of less protein carrier without sacrificing immunogenicity
 - Enable broader-spectrum vaccines

NOVEL PROTEIN VACCINES

- Able to produce “tough-to-make” protein antigens that conform to target pathogens
- Increased likelihood of protective immune response

PCV Opportunity

Global Impact of Pneumococcal Disease Remains Significant

About Streptococcus Pneumoniae

Streptococcus pneumoniae is the most common pathogen causing pneumococcal disease (PD).

- Non-invasive PD includes: otitis media, sinusitis, pneumonia.
- Invasive PD (IPD) includes: bacteremia, meningitis.
- Pneumococci cause over 50% of all cases of bacterial meningitis in the U.S.

Global Incidence & Impact of PD

Global incidence of PD is driven by emerging serotypes not covered by currently available vaccines.

- In the U.S. alone, there are ~900K pneumococcal pneumonia cases annually.
- The CDC estimates that 150K hospitalizations from pneumococcal pneumonia occur annually in the U.S.
- Among children under age 5, PD is a leading cause of death globally.

Current Global Standard-of-Care

Vaccinations are recommended globally for infants and adults to prevent PD.

In the U.S.:

- Infants: PCV13 (4 doses)
- Adults: Prevnar 20™ (PCV20) (1 dose) or Vaxneuvance™ (PCV15) and Pneumovax® 23 (PPV23) (1 dose/each)

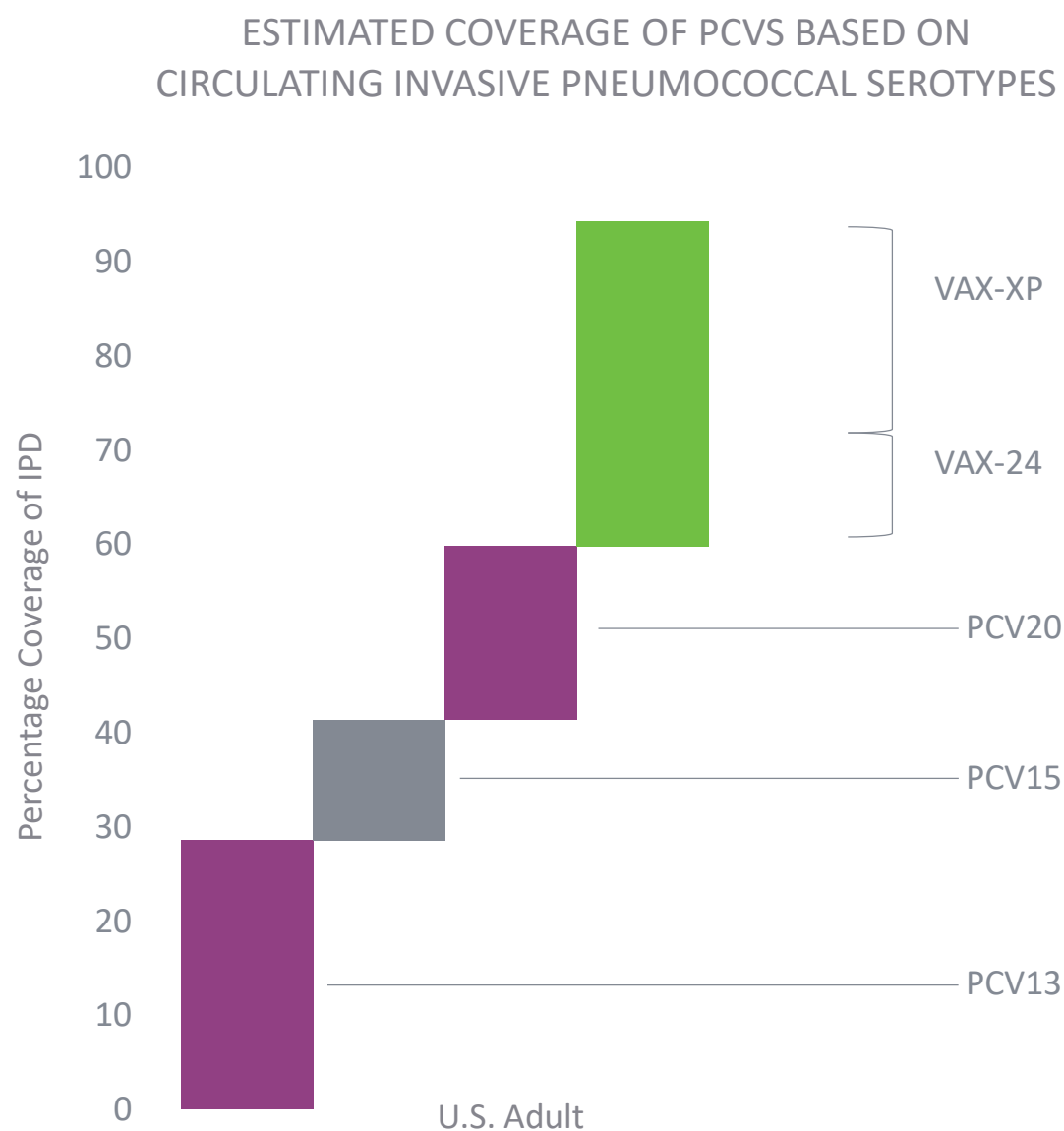
¹ Gierke 2015

² <https://www.cdc.gov/abcs/reports-findings/survreports/spneu18.pdf> CDC 2018

³ <https://www.cdc.gov/pneumococcal/clinicians/clinical-features.html>

Significant Unmet Needs Despite Recent Coverage Expansion in Adults

Resulting in Spectrum of Coverage Driving Adoption of Pneumococcal Vaccines



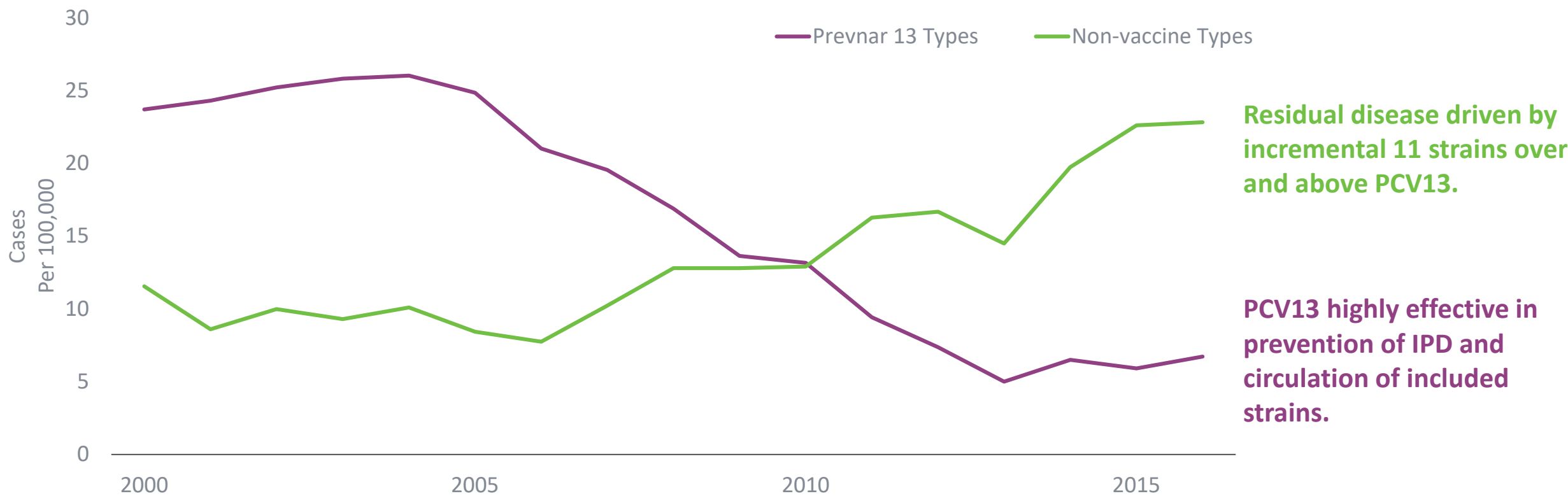
Most IPD is caused by strains above and beyond Prevnar 13[®], driving need for broader-spectrum PCVs.

¹Data in the US is for 2017, inclusive of those > 5 yrs of age
²Varghese et al. Clin Micro and Infect (2020) 26(4): 512.e1-512.e10

Serotype Replacement Drives Need for Broader-Spectrum Vaccines

Non-Vaccine Serotypes Increase in Prevalence, as Circulation of Vaccine Serotypes is Eliminated, Resulting in the Need for Broader-Spectrum Vaccines

UK IPD CASES IN ADULTS ≥ 65 ⁽¹⁾



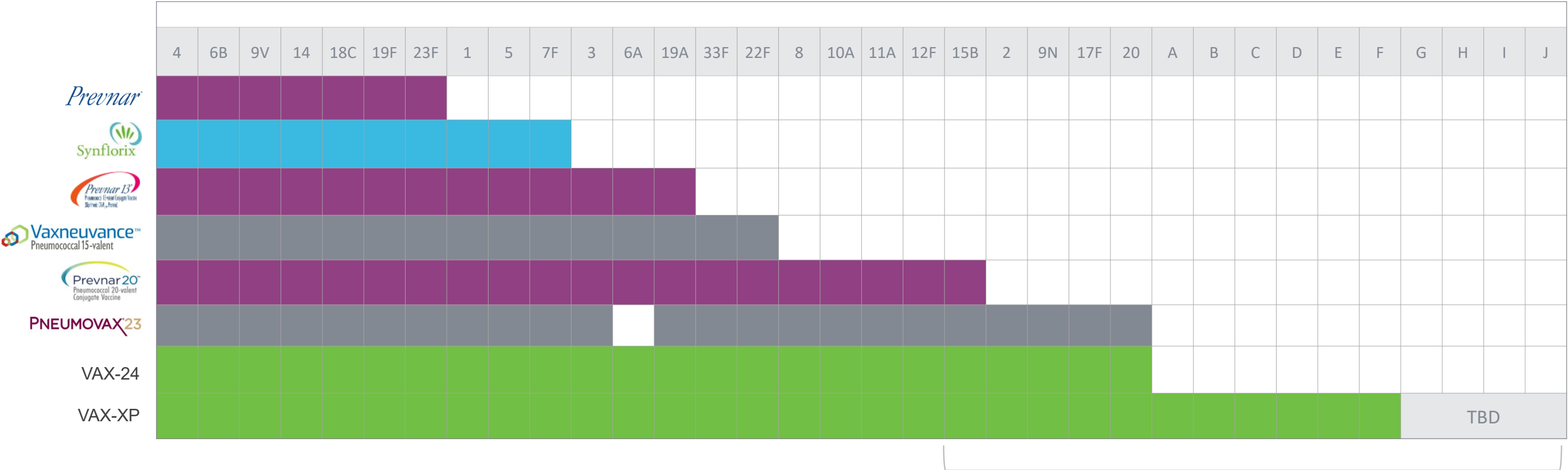
(1) Ladhani et al, Lancet Infect Dis 2018 Apr;18(4):441-45 inclusive of unpublished raw data.

Vaxcyte PCV Franchise Designed to Offer Broader Protection

Potential for Sustained Leadership in the Established >\$7B Pneumococcal Vaccine Market

VAX-XP: Next-generation >30-valent PCV showcases franchise approach and scalability of carrier-sparing conjugates

VAX-24: Category-leading 24-valent PCV incorporating carrier-sparing conjugates



Spectrum of Coverage Drives Adoption

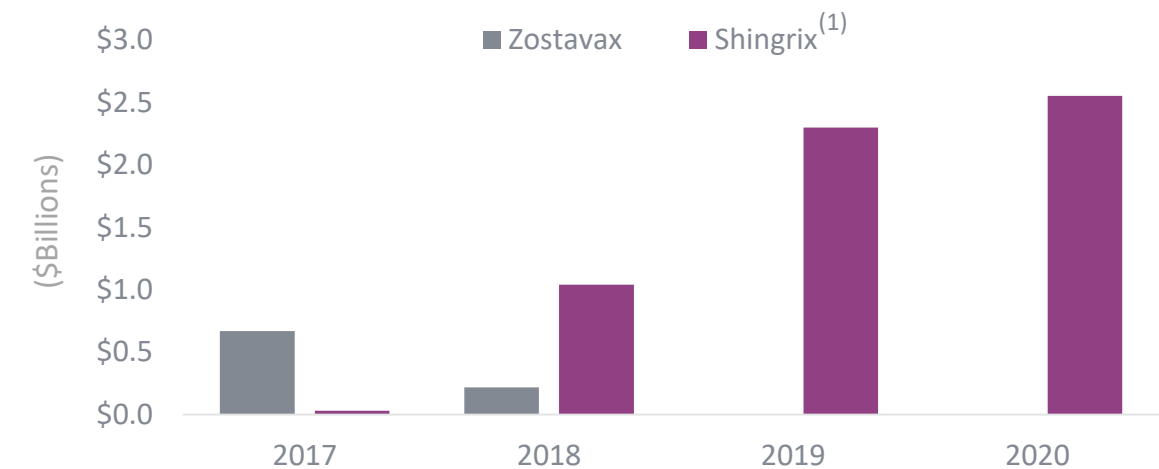
Source: Prescribing information for Prevnar, Prevnar 13, Prevnar20, Synflorix, Vaxneuvance, and Prevnar 20. Company filings for Vaxcyte

Pneumococcal Vaccine Market is Highly Attractive

VAX-24 has the Potential to Become the Most Broad-Spectrum PCV

Pneumococcal Vaccine Market Dynamics

- Spectrum of coverage drives adoption
- Highly attractive margins:
 - PCV13 & PPV23 are premium priced in the US
- Durable revenue stream:
 - PCV13 & PPV23 have generated >\$100B in revenues
- PCVs are best-in-class:
 - Well-understood T-cell dependent MOA tied to co-presentation of disease-specific polysaccharide antigens with mapped T-cell epitopes on protein carrier
 - Well-defined clinical development path: Non-inferiority to SOC using validated surrogate immune endpoints now adequate for full approval for follow-on PCVs
- Potential for rapid adoption: Governing body – ACIP recommendation drives uptake
 - PCV13 vs Prevnar 7
 - Shingrix® vs Zostavax®



- FDA approved in 4Q:2017 to prevent shingles in adults
- ACIP granted “preferred recommendation”
- Replaced the incumbent (Zostavax from Merck)

MOA = mechanism of action; SOC = standard of care; ACIP = US CDC Advisory Committee on Immunization Practices.

(1) Revenues reported in GSK (Shingrix) and Merck (Zostavax) financial filings.

Potential for Global Pneumococcal Market to Grow Beyond the \$7B Today

Oct 2021 ACIP Vote Reinforced Need for PCVs with Broader Spectrum of Coverage and Use in Expanded Adult Population



- ACIP supported use of either Pfizer's PCV20 or Merck's PCV15 along with continued use of Pneumovax23 in adults ≥ 65 years of age
- Value of incremental strains vs Prevnar 13 demonstrated by a premium price for Prevnar 20 and Merck's PCV15

By preserving PPV23, ACIP decision reinforces the need for a 24-valent PCV



- Age-based recommendation remains at age 65, per ACIP
- This is the first time ACIP has recommended a PCV for risk groups ages 19 to 64

Significantly expands adult population and increases overall PCV market

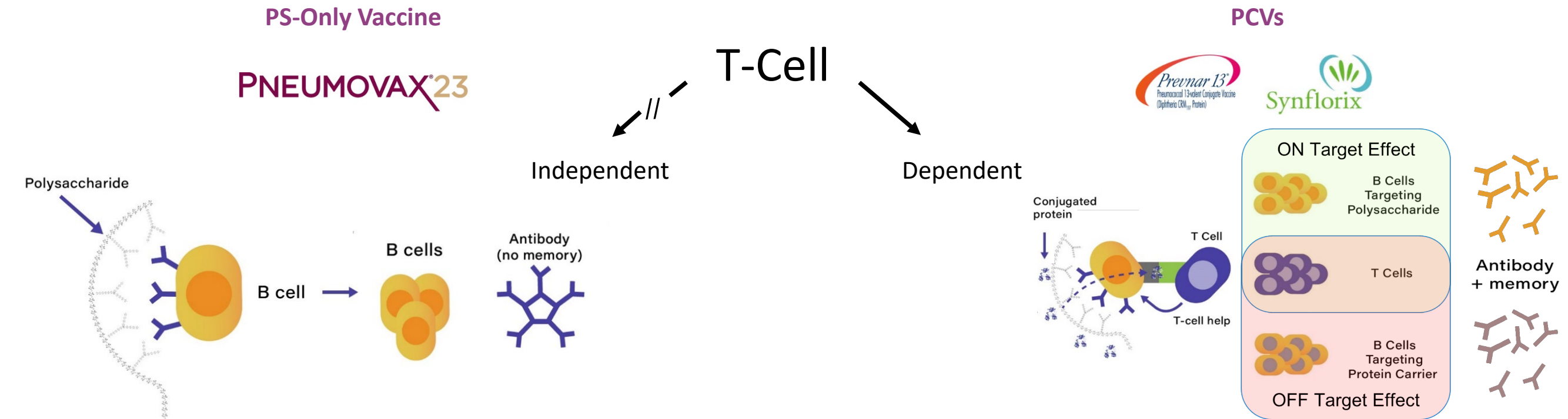


- Strong desire expressed by several ACIP committee members to move adult vaccination to 50 years of age
- CDC committed to gathering more data and revisiting at a future meeting

Provides important opportunity to address unmet needs in adults

PCVs Designed to Overcome the Limitations of Polysaccharide-Only Vaccines

PCV Efficacy Driven by T-Cell Epitopes on Diphtheria Toxin Protein Carrier – CRM₁₉₇⁽¹⁾



Broad Coverage But Limited Protection in Adults - Not Boostable

Pneumococcal capsular polysaccharides (PS) antigens lead to:

- Transient Ab responses (IgM) protect against sepsis, but not pneumonia
- No T-cell mediated memory responses, thus no boost
- Hyporesponsive effect inhibits ability to boost PCVs post-prime

Narrow Coverage But Highly Effective in Adults & Infants - Boostable

Conjugation of PS to protein carrier leads to:

- Enhanced Ab responses (IgG) that protect against pneumonia
- T cell-mediated memory to provide boostable, durable protection
- Characteristic interstrand crosslinked matrix-like structures

Note: Graphics adapted from Strugnelli et al, Understanding Modern Vaccines, Vol 1, Issue 1, 61-88.

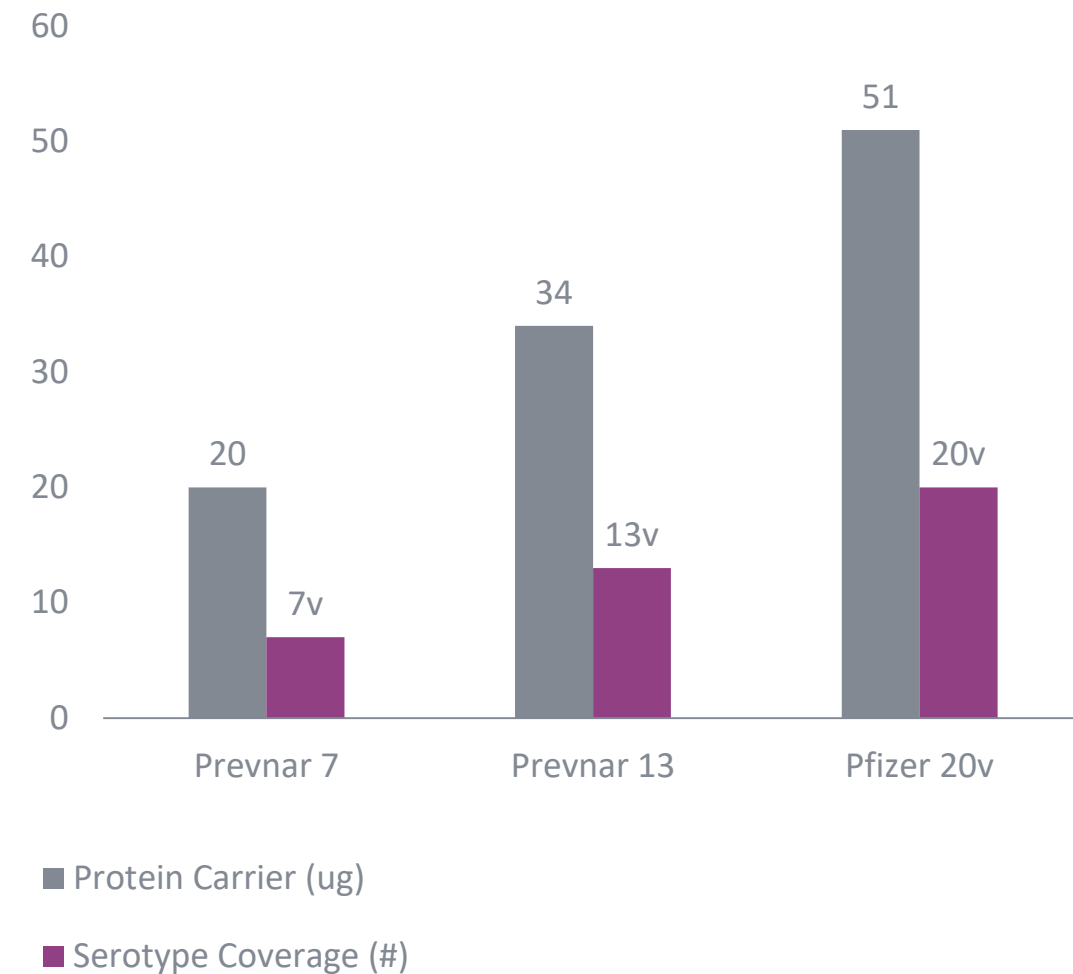
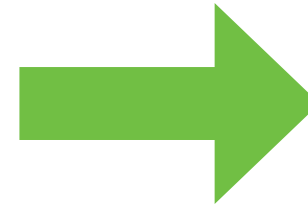
(1) Protein carrier in Pevnar 13 is a modified form of diphtheria toxin (CRM₁₉₇).

Limitations of Current PCVs

Coverage Expansion Needed to Address Circulating Disease, but Protein Carrier Backbone Problematic

Limitations of conventional chemistry

- Random conjugation
- Higher ratio of protein carrier to polysaccharide
- Further exacerbates carrier suppression



(1) Pevnar 20 BLA Clinical Review Memorandum. STN: 125731/0 June 8, 2021.

Limitations of Current PCVs

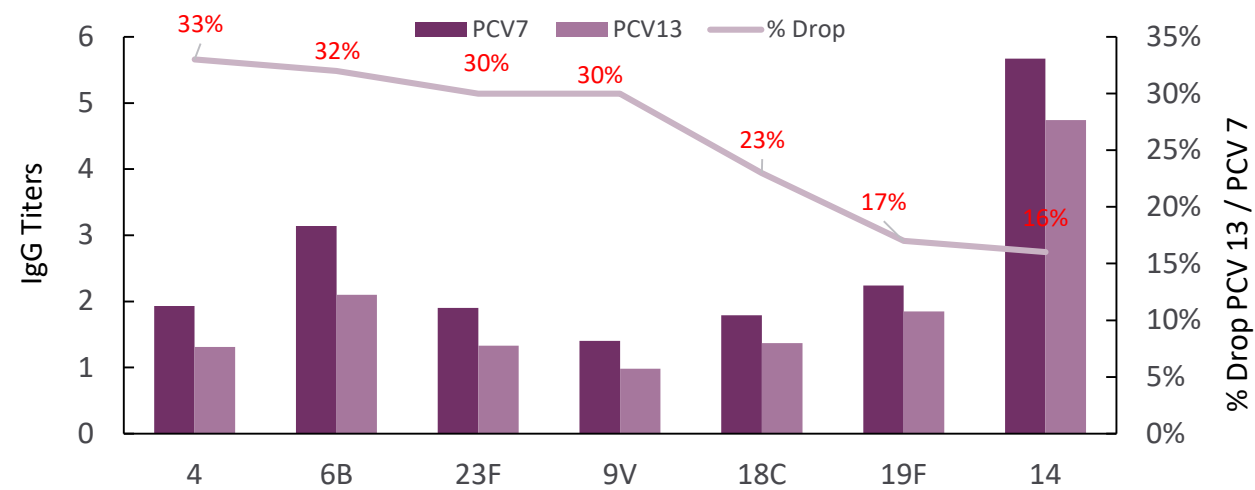
Coverage Expansion Using Conventional Chemistry Has Led to Carrier-Induced Immune Suppression

Carrier Suppression

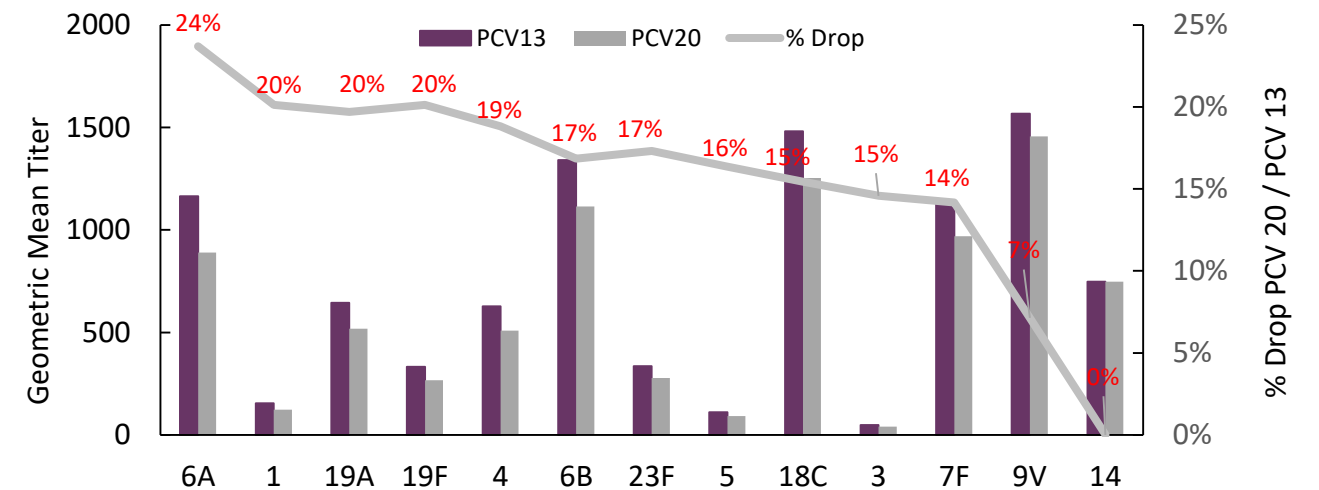
Reduced immune response to the target polysaccharides due to the cumulative amount of the protein carrier

- Expanded spectrum of coverage requires increasing protein carrier burden
- Reduced immune responses demonstrated in both infants and adults

INFANT IMMUNE RESPONSES (IGG):
PREVNAR 7 VS PREVNAR 13 ⁽¹⁾



ADULT IMMUNE RESPONSES (OPA):
PREVNAR 13 VS PCV20 ⁽²⁾



(1) Yeh et al, Pediatrics. 126: e493 (2010).

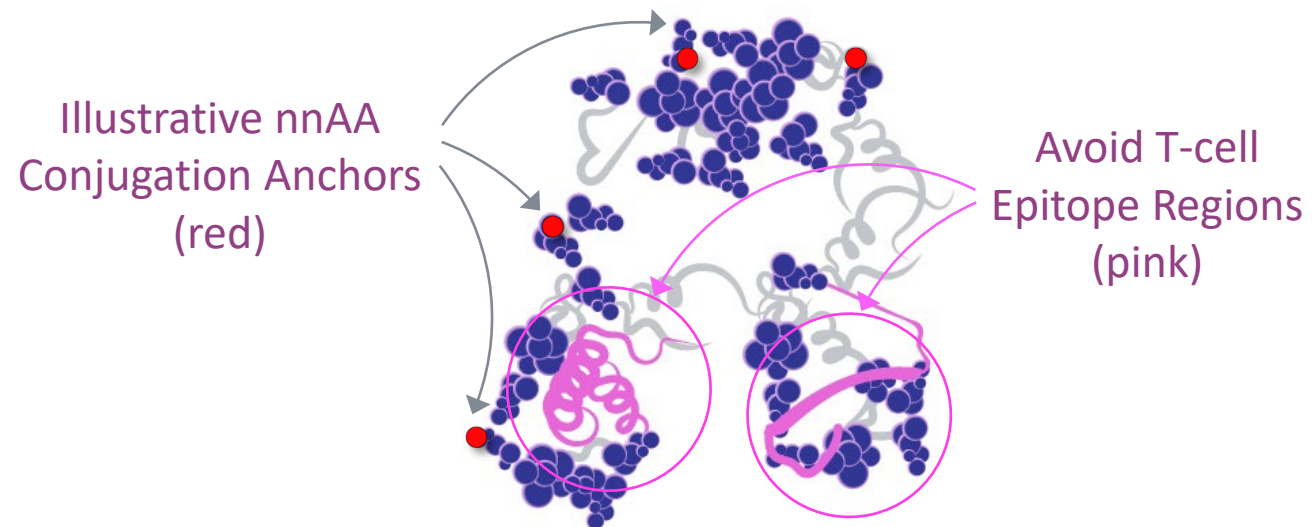
(2) Prevnar 20 BLA Clinical Review Memorandum. STN: 125731/0 June 8, 2021

Differentiated PCV Franchise Led by VAX-24

VAX-24 Employs Carrier-Sparing Conjugates

XpressCF Enables Precise Conjugation to Enhance Potency of Standard Protein Carrier

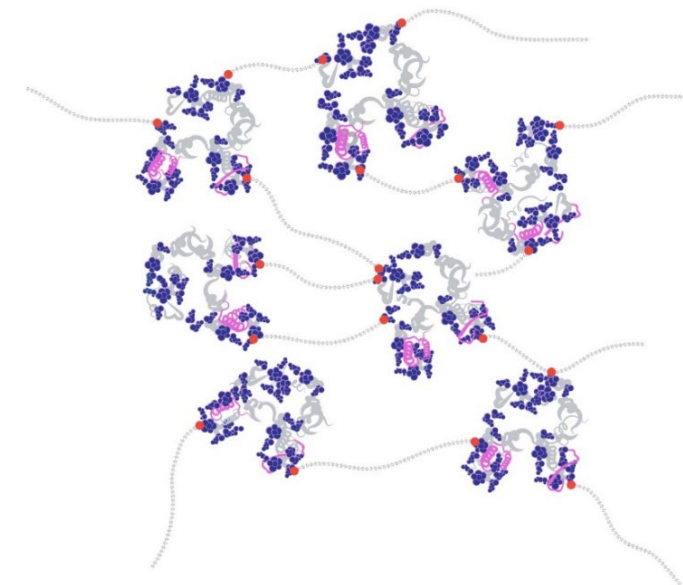
PRECISE, SITE-SPECIFIC CONJUGATION SITES ON PROPRIETARY
eCRM[®] PROTEIN CARRIER



eCRM: Enhanced Potency Potential

- Avoids masking sites on CRM₁₉₇ carrier responsible for T-cell help
- Optimized sites for conjugation using copper-free click chemistry
- More consistent antigenic presentation

FINAL VAX-24 CONJUGATES IN CUSTOMARY MATRIX FORM



Carrier-Sparing Conjugates

- Less protein carrier / conjugate may allow addition of more serotypes while minimizing carrier suppression and maintaining immunogenicity
- VAX-24 and VAX-XP conjugates form standard PCV interstrand crosslinked matrices
 - Perceived as foreign by the host
 - Allows use of standard critical quality attribute and serological assays

VAX-24 Design Leverages Many Standard PCV Conventions

Utilizes Proven Components, Chemistries and Assays to Reduce Risk and Uncertainty

	Polysaccharide		Protein Carrier		Assays		
	CDAP / Periodate Activation	Amination for Labeling PS	Incorporation of Non-natural AAs	Random Lysine Conjugation	Site-Specific Click Chemistry Conjugation	CQA Release Assays (Mol Wt, Free PS)	Serological Assays (IgG & OPA)
Pfizer/GSK Methods	✓	✓		✓		✓	✓
Vaxcyte	✓	✓	✓		✓	✓	✓

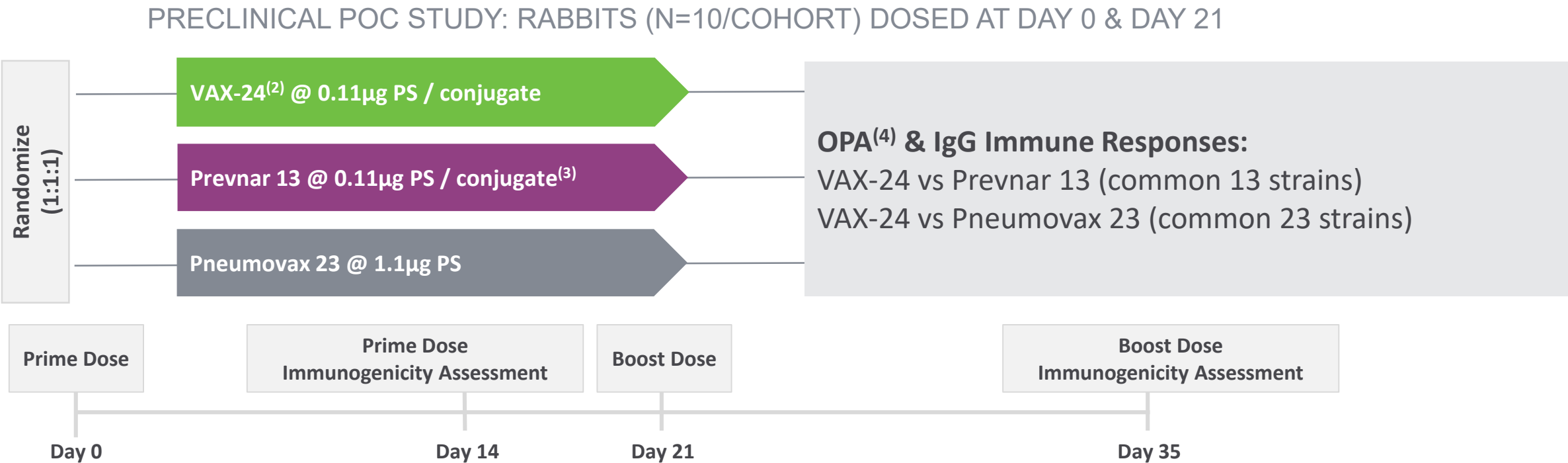
Novel Enablement: Site-specific conjugation via incorporation of nnAA conjugation anchors

- Where appropriate, we expect to capitalize on the efficiencies of well-established clinical, manufacturing & regulatory precedents by leveraging conventional methods for the development of VAX-24
- Vaxcyte has leveraged the same animal models utilized in the development of both approved PCVs (Pneumovax and Synflorix)

VAX-24 Preclinical POC Study

Designed to Assess Conjugate-Like Immune Responses vs Standard of Care

Study Design: Vaccination of rabbits⁽¹⁾ with doses matching weight-to-weight allometric scaling to marketed human dose



Key Objectives:

Demonstrate conjugate-like responses vs SOC on all 24 serotypes

- OPA Responses: Primary surrogate endpoint for full approval in adults
- IgG Responses: Co-Primary surrogate endpoint for full approval in infants

Key Endpoints:

Immunogenicity (OPA & IgG)

- VAX-24 vs Prevnar 13 common serotypes (Day 35)
- VAX-24 vs Pneumovax 23 for 11 incremental serotypes (Day 35)

⁽¹⁾ Represents same rabbit model as utilized in the development of approved PCVs (Prevnar, Prevnar 13, Synflorix).

⁽²⁾ VAX-24 conjugates produced with all Lonza-produced materials (eCRM & 24 polysaccharides).

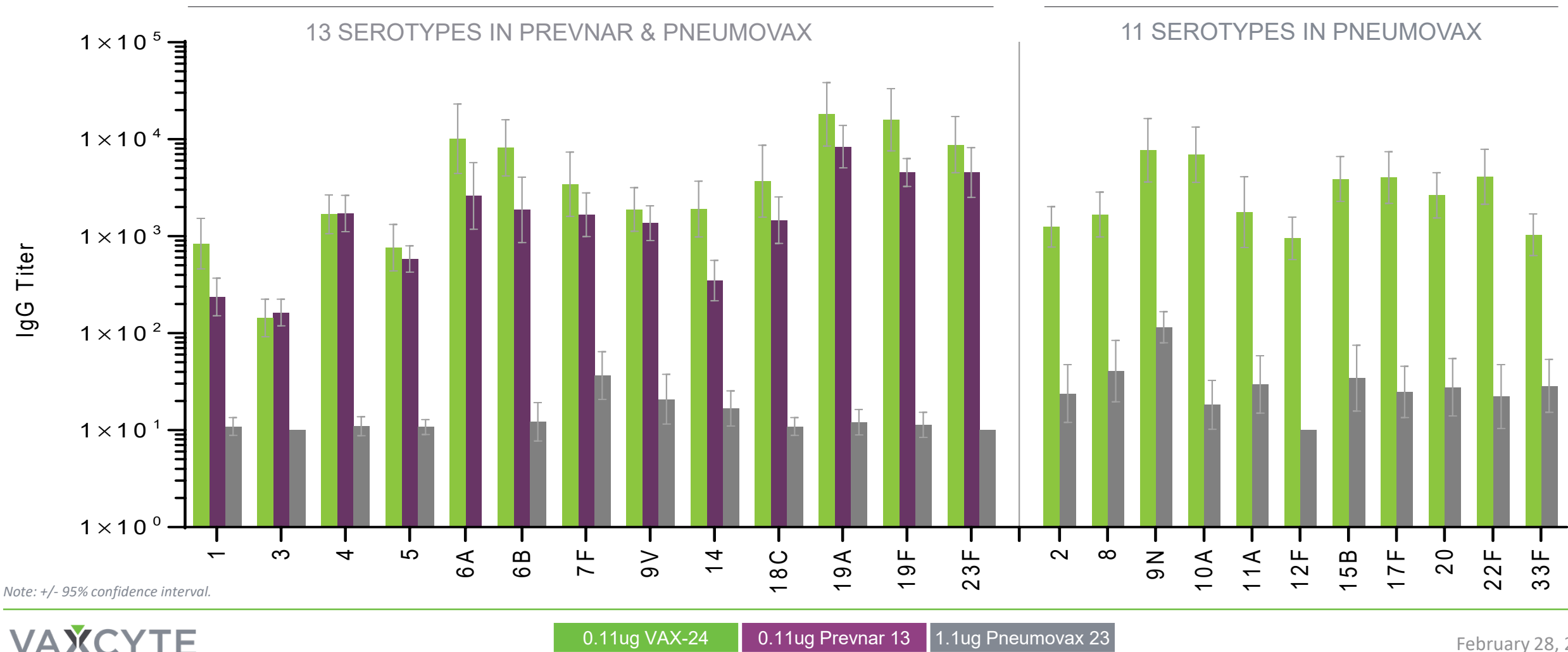
⁽³⁾ Prevnar 13 dose of 6B is 2x the amount relative to the other conjugates, so equates to 0.22µg in this study.

⁽⁴⁾ Opsonophagocytic activity assay (OPA) measures the functional capacities of vaccine-candidate-raised antibodies.

VAX-24 Preclinical POC Study Supports Potential to Deliver Broader-Spectrum PCV

IgG Antibody Titer Comparisons (Current Standard for Approval in Pediatrics)

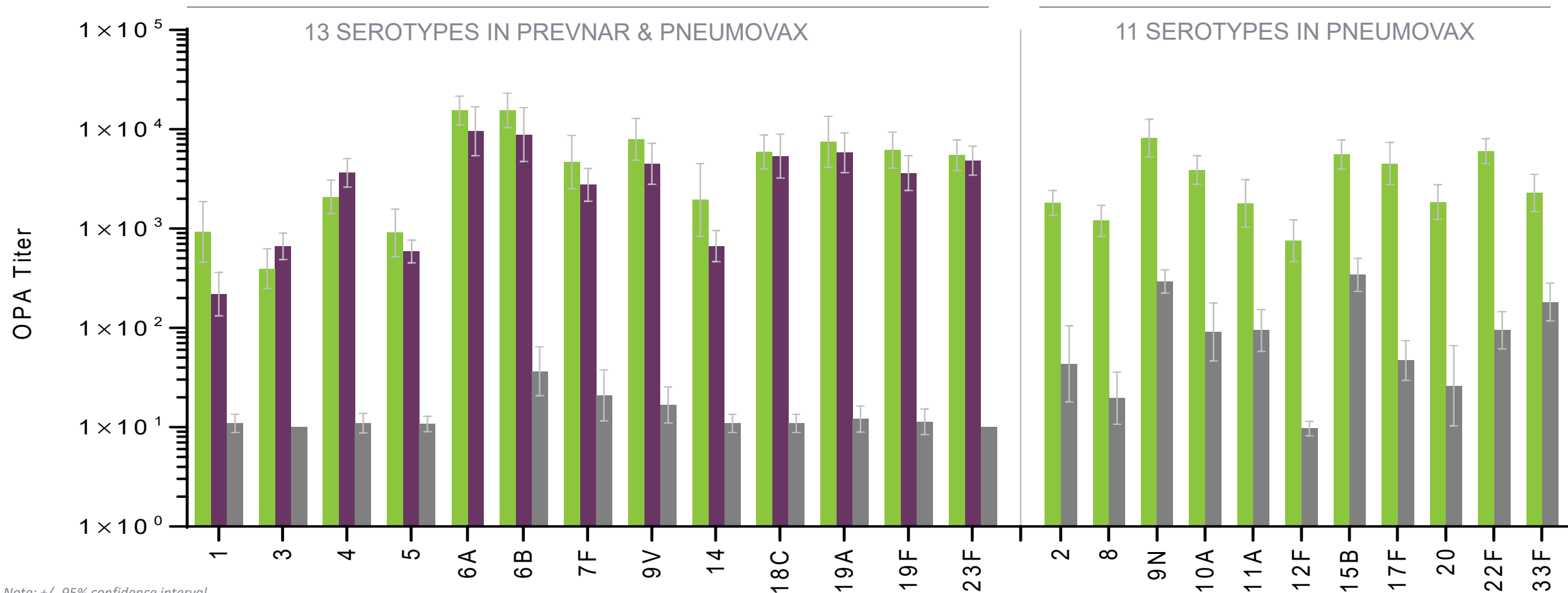
- Comparable or better immune responses for VAX-24 relative to Prevnar 13 and Pneumovax 23 across common strains.
- Potential for approval in pediatrics based on non-inferiority relative to standard of care ($\geq 50\%$ of IgG titers one month post-boost).



VAX-24 Preclinical POC Study Supports Potential to Deliver Broader-Spectrum PCV

Functional Antibody (OPA) Responses (Current Standard for Approval in Adults)

- Comparable or better immune responses for VAX-24 relative to Prevnar 13 and Pneumovax 23 across all common strains.
- Potential for approval in adults based on non-inferiority relative to standard of care ($\geq 50\%$ of OPA titers one month post-vaccination).

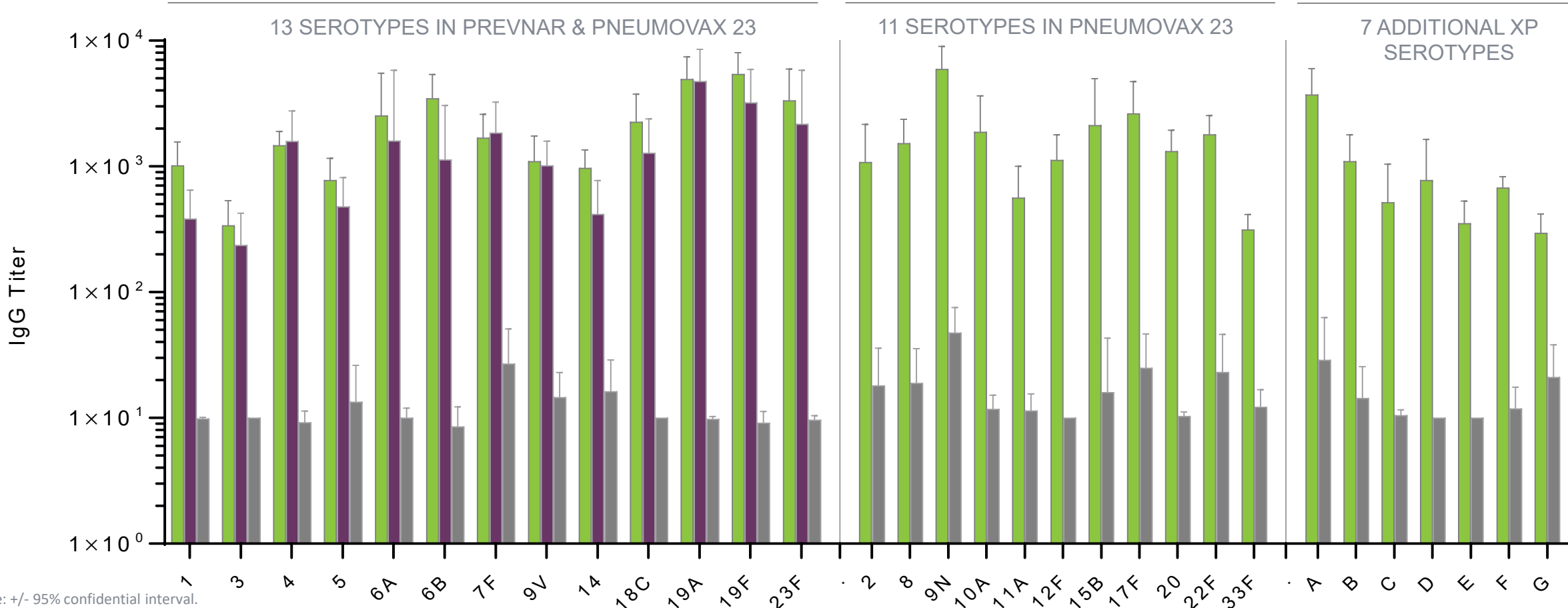


Note: $\pm 95\%$ confidence interval.

VAX-XP: Further Evidence of Potential for Platform Scalability

IgG Responses for VAX-XP Comparable to Prevnar 13 & Superior to Polysaccharide-only Serotypes

- VAX-XP incorporates VAX-24 strains plus emerging serotypes responsible for significant IPD & antibiotic resistance.
- Demonstrates spectra scalability of platform and reproducibility of VAX-XP POC data with conjugates produced at larger scale.



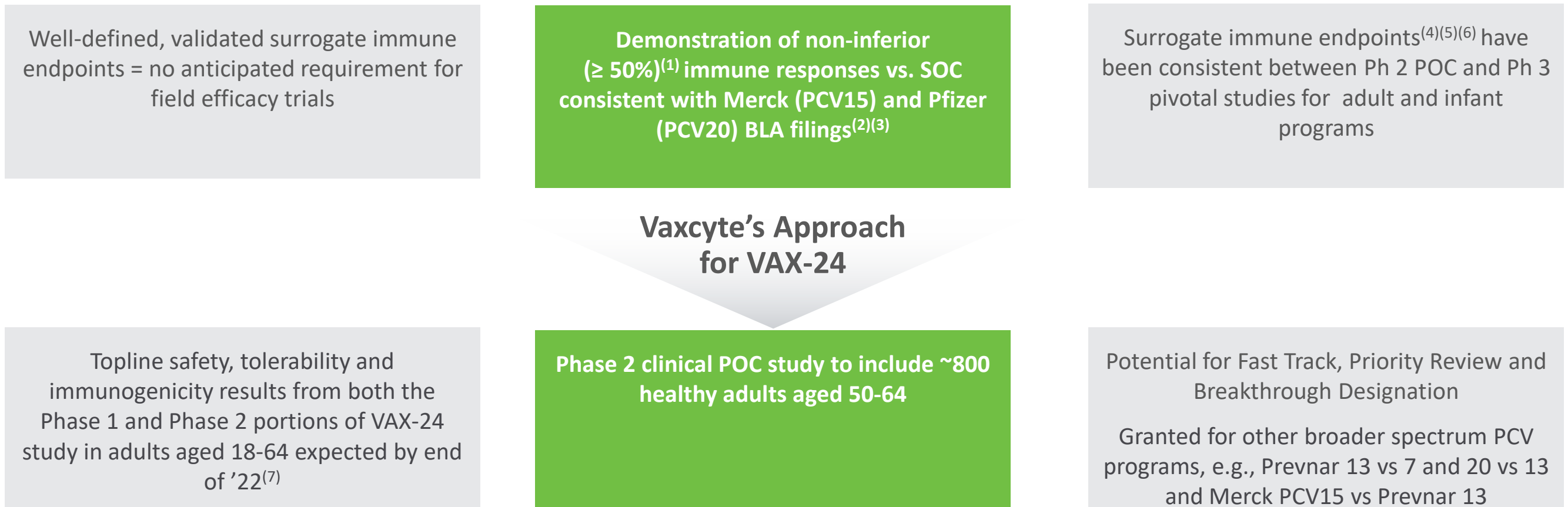
Note: +/- 95% confidential interval.

(1) VAX-XP, includes all 24 strains in VAX-24 and 7 additional pneumococcal conjugates.

(2) PS/Alum = PSs formulated with alum.

PCV Franchise Leverages Established Regulatory Pathway

Potential FDA Approval Path Supported by Current WHO Guidance & Precedent PCVs



(1) 95% CI lower limit of the OPA GMT ratio ≥ 0.5 for each serotype comparison.

(2) Clinicaltrials.gov: Pfizer clinical studies for 20vPnC NCT03512288, NCT03550313, NCT03313050, NCT03313037, NCT03760146, NCT03835975, and NCT03828617.

(3) Clinicaltrials.gov: Merck clinical studies for V114 (PCV15) NCT02987972, NCT03620162, NCT03692871, NCT03731182, NCT03480763, NCT03615482, NCT03547167, NCT03480802, and NCT03565900.

(4) WHO. Recommendations to assure the quality, safety and efficacy of pneumococcal conjugate vaccines, in WHO Expert Committee on Biological Standardization, 60th report. Geneva, Switzerland: WHO; 2013:91-521.

(5) Prevnar 13 FDA Summary Basis for Regulatory Action. BLA/STN: 125324, 2010. <https://www.fda.gov/downloads/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM206140.pdf>. Accessed January 10, 2020.

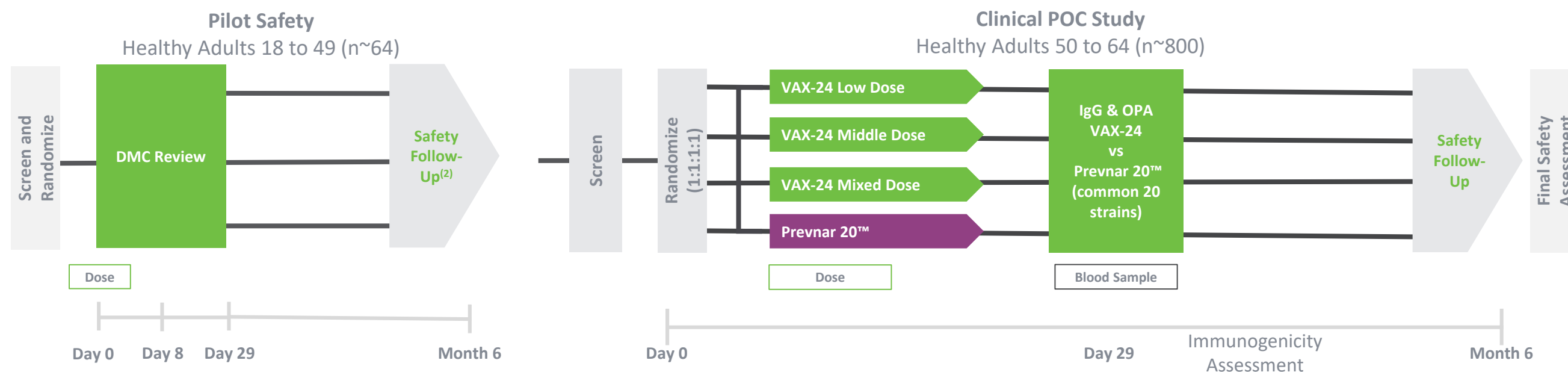
(6) Guidelines on clinical evaluation of vaccines. EMEA/CHMP/VWP/164653/05, April 2018. https://www.ema.europa.eu/en/documents/scientific-guideline/draft-guideline-clinical-evaluation-vaccines-revision-1_en.pdf, Accessed Feb 11, 2020.

(7) Guidance provided as of February 28, 2022.

VAX-24 Phase 1/2 Clinical Proof-of-Concept Study Initiated in Q1:22

Topline Safety, Tolerability and Immunogenicity Results Anticipated by End of 2022⁽¹⁾

Study Design: Randomized, Observer-Blind, Dose-Finding, Controlled Study to Evaluate Safety, Tolerability & Immunogenicity of VAX-24 vs SOC in Adults Aged 18-64



- Phase 1 portion of the study will evaluate safety and tolerability of a single injection of VAX-24 at three dose levels and compared to Pevnar 20™ in ~64 healthy adults 18 to 49 years of age. Participants will be randomized equally in four separate arms and will be evaluated for safety 8 and 29 days after dosing.















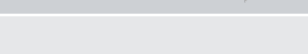













- Phase 2 portion of the study will evaluate safety, tolerability and immunogenicity of a single injection of VAX-24 at three dose levels and compared to Pevnar 20™ in ~800 healthy adults 50 to 64 years of age. Participants will be randomized equally in four separate arms and approximately 28 days after participants are dosed, serology samples collected to assess immunogenicity.
- All participants in the Phase 1/2 study will be followed for a total of six months after dosing to assess safety and tolerability.

(1) Guidance provided as of February 28, 2022.

(2) Pilot Safety Follow-up will continue thru Day 212 in parallel upon initiation of Clinical POC Study after Day 29 safety observation.

The Pneumococcal Vaccine Landscape

Vaxcyte PCV Franchise Designed to Offer Broadest Spectrum of Coverage

	DEVELOPER	VACCINE NAME	SPECTRUM OF COVERAGE	STATUS	TARGET POPULATION: INFANTS /ADULTS	
PCV APPROACHES	GSK	SYNFLORIX	 10-VALENT	• Approved ex-US		
	MERCK	VAXNEUVANCE	 15-VALENT	• FDA approved in adults • Phase 3 in infants		
		MERCK V116	 21-VALENT	• Preclinical		
		MERCK V117	UNKNOWN	• Preclinical		
	PFIZER	PREVNAR 13	 13-VALENT	• SOC in infants		
		PREVNAR 20	 20-VALENT	• SOC in adults • Phase 3 in infants		
	SK BIOSCIENCE/ SANOFI-PASTEUR	PCV21	 21-VALENT	• Phase 2 in adults, toddlers and infants		
	VAXCYTE	VAX-24 (SITE-SPECIFIC CONJUGATION)	 24-VALENT	• Phase 1/2 in adults		
		VAX-XP (SITE-SPECIFIC CONJUGATION)	 30 PLUS- VALENT	• Preclinical POC		
NON-PCV APPROACHES	MERCK	PNEUMOVAX 23 (PS ONLY)	 23-VALENT	• SOC in adults post-PCV15		
	AFFINIVAX / ASTELLAS	ASP3772 (AFFINITY-BOUND PSS TO NOVEL PNEUMO PROTEINS)	 24-VALENT	• Phase 2 in adults • Phase 1 in healthy toddlers		

SOC = standard of care; PS = polysaccharides,

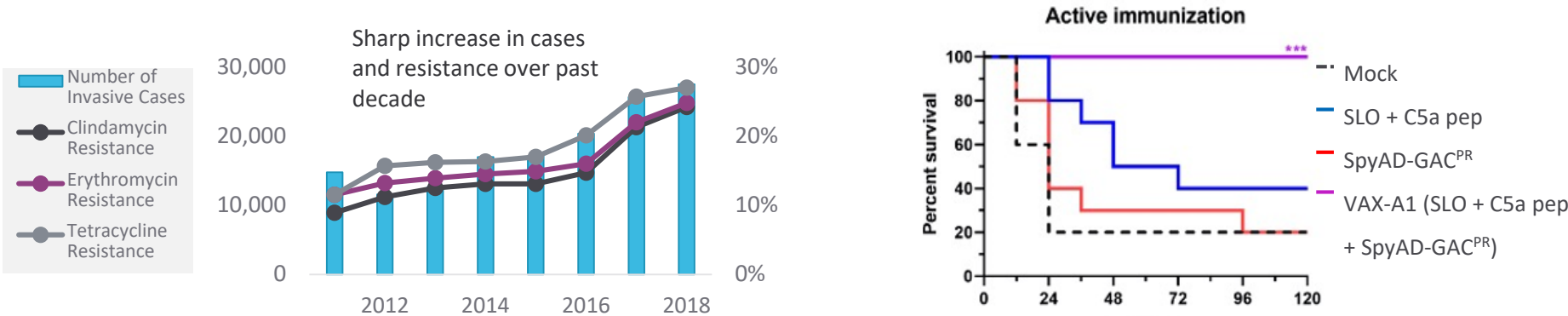
Non-PCV Pipeline

VAX-A1: Group A Strep Conjugate Vaccine Program

Novel Conjugate Vaccine Designed to Provide Universal Protection

Unmet Need	<ul style="list-style-type: none">Group A Strep causes 700M global annual cases of pharyngitis (strep throat) and increases risk of severe invasive infections such as sepsis, necrotizing fasciitis and toxic shock syndromeUpgraded CDC threat given significant source of antibiotic Rxs driving resistance which has nearly tripled in past decadeResponsible for post-infectious immune-mediated rheumatic heart disease leading to over 300K deaths in 2015Highly prevalent in children and rate of invasive disease in adults > 65 has more than doubled (exceeding IPD rate in adults)
VAX-A1: Broad-spectrum, Monovalent Conjugate Vx	<ul style="list-style-type: none">Designed to confer robust, boostable and durable protection against a broad spectrum of subtypes of Group A StrepLeverages site-specific conjugation to disease-specific carrier to expose mapped T- and B-cell epitopesProprietary conserved antigen – Polyrrhamnose – conjugated to an immunogenic disease-specific carrier along with two conserved virulence factors
Program Status	<ul style="list-style-type: none">Partially funded by grant from CARB-X (consortium of BMGF, Wellcome Trust, US Biodefense Agency (BARDA)); add'l August 2021 award of \$3.2M toward IND-enabling activities; total potential funding of up to \$13.9M inclusive of grants to dateInitiated IND-enabling activities in 2H:21Anticipate providing guidance on the expected timing for adult IND application submission in 2H:22⁽¹⁾

Key Data



(1) Guidance provided as of February 28, 2022.

Resistant includes those isolates intermediate or fully resistant to antibiotics tested.

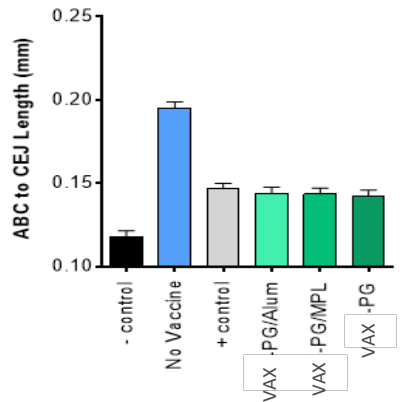
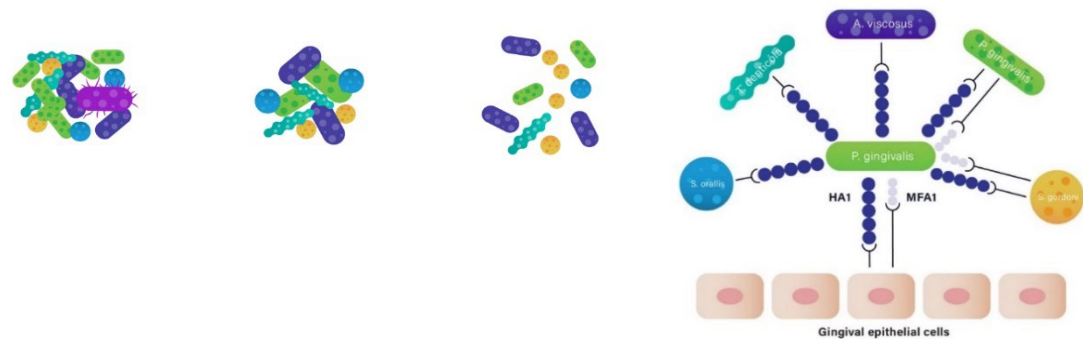
CDC. Antibiotic Resistance Threats in the United States, 2019. Atlanta, GA: US Department of Health and Human Services, CDC; 2019.

BMGF = Bill & Melinda Gates Foundation.

VAX-PG: Periodontitis Vaccine Program

Therapeutic Vaccine Targeting Gingipains to Address Large, Underserved Market

Unmet Need	<ul style="list-style-type: none">Periodontal disease is a chronic oral inflammatory disease leading to destruction of soft & hard tissues supporting the teethHighly prevalent: 65 million US adults afflictedSignificant morbidity and lost productivity: >\$50B in lost productivity in 2010Associated with increased risk of heart attack, stroke, cardiovascular disease and Alzheimer's Disease
VAX-PG: Multivalent Therapeutic Vaccine	<ul style="list-style-type: none">Incorporates proprietary combination of known virulence factors of keystone pathogenPreclinical model demonstrated protein-specific IgG response following immunization and protected mice from P. gingivalis-elicited oral bone lossInitial goal to develop therapeutic vaccine that slows or stops disease progression
Program Status	<ul style="list-style-type: none">Preclinical proof of concept published in Journal of Clinical PeriodontologyNext milestone: Nominate final vaccine candidate by the end of 2022⁽¹⁾
MOA & Key Data	<ul style="list-style-type: none">Restoration of balanced microbiota by interrupting underlying inflammatory condition



Challenge Study Results

Immunization with all formulations of VAX-PG provided significant protection against oral bone loss compared to the unvaccinated control ($p < 0.01$)

(1) Guidance provided as of February 28, 2022.
Huang et.al. J Clin Periodontol. 2019 Feb;46(2):197-205

Key Corporate Highlights



Large Market Opportunity for Lead PCV Franchise

Cell-Free Protein Synthesis Platform

Disciplined Target Selection

Robust Pipeline with Multiple Novel Vaccines

Aligned Critical Resources