



ADVANCING POWERFUL NEW CLASS OF IMMUNOTHERAPEUTIC ANTIBODIES

OCTOBER 2021

Forward Looking Statements

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Novel DiversitAb™ Platform for Developing Highly-Differentiated Immunotherapies



Robust, growing clinical-stage pipeline spanning multiple therapeutic areas with multiple near-term catalysts



Vertical integration enables rapid, scalable development of multi-targeted products



Leveraged advanced genetic engineering & antibody science to develop Tc bovine-derived fully-human polyclonal antibodies



Established proof-of-concept through US Government funded programs & partnerships totaling ~\$300MM



Strong corporate position with experienced leadership team and growing infrastructure



Innovative DiversitAb™ platform produces a new class of targeted fully-human, highly-potent polyclonal antibodies

Versatile Antibody Platform with Ability to Capture Multiple Markets

Human Antibody Discovery & Development Engine, New Source for IgG, Therapeutic Production
Represents Multibillion-Dollar Market Opportunity



Polyclonal Antibody Development

- Human, targeted, high-potency
- Multivalent, multi-targeted

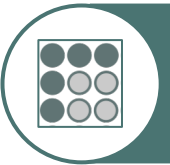
- **Robust pipeline across multiple therapeutic areas**
- **Potential to capture mAb, hIVIG, animal pAb markets and address unmet needs**



Human Immunoglobulin

- Offers large scale, consistently managed donor pool, genetically representing single human donor

- **In vivo data demonstrating comparability to approved SC product and potential benefits over human-derived**



Reagent Antibodies (Diagnostics)

- Fully Human
- Rapid development
- Specifically targeted

- **Current worldwide standard for Ebola and MERS**
- **Low volume and high margin, unique capability**



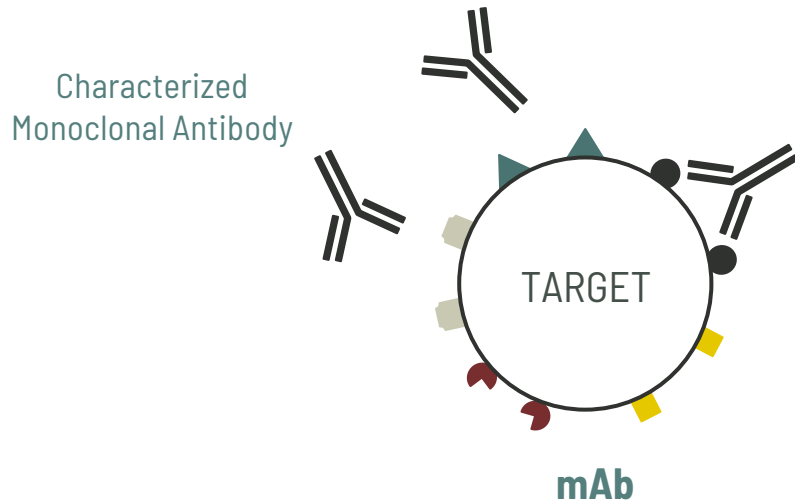
Monoclonal Antibody Discovery

- Larger volume of antibodies
- Greater diversity; higher affinity
- Robust (ruminant) immune response

- **Multiple ongoing global pharma collaborations**

Polyclonals: Broader Spectrum Efficacy Valuable in Range of Indications

FDA: CENTER FOR **DRUG** EVALUATION & RESEARCH (CDER)

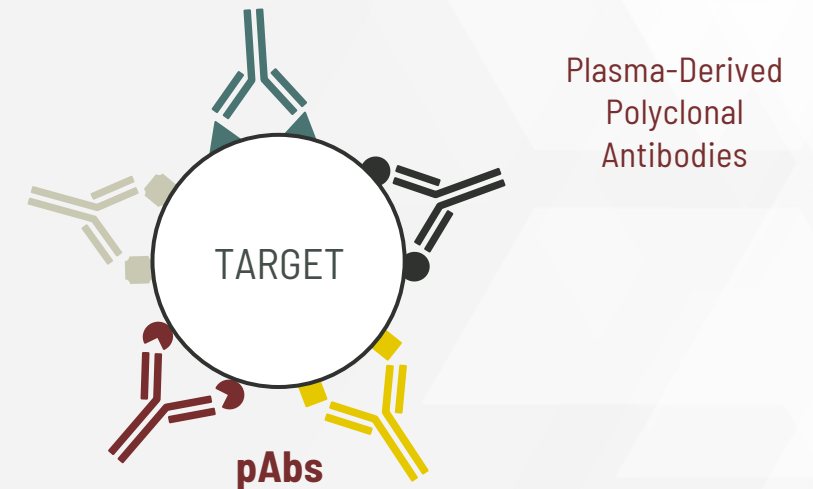


Clones of a single antibody bind to a specific epitope

Monoclonal Approach

- Highly-targeted with specific activity
- Iterative Ab identification and selection process
- Selected and cloned *in vitro*
- May promote escape mutants via selective pressure
- Resistance may develop as pathogen/target mutates
- Current cocktail trend to address resistance

FDA: CENTER FOR **BIOLOGICS** EVALUATION & RESEARCH (CBER)



Natural mixture of many antibodies bind to multiple epitopes

Polyclonal Approach

- Diversity of antibodies with multiple modalities
- Naturally selected and produced *in vivo*
- Effective against escape mutants
- Reduced possibility of resistance
- Activates cellular immunity
- Synergistic properties not duplicated by mono- or oligoclones

DiversitAb™: Multi-Dimensional Immunotherapies from Tc Bovine-Derived Human Antibody Platform



Combinatorial mechanisms target diverse causes common to many human diseases

Polyclonal

Activates full effector cell function and complement

Exceeds Targeted Neutralization

Multi-valent

Designed to bind to multiple targets, strains, or mutations

Specifically-Targeted Antibodies

Hyperimmunization

Drives higher titers with elevated potency, avidity, improved function

Cross-Reactive & High Potency

Strain Change

Potential to introduce identically-produced new strain or antigen

Seasonal Therapeutic

Admin. Route

Expanding IV base formulations to IM, SC and inhaled forms

Clinical Flexibility & Patient Ease

Multi-Pronged Business Strategy Powered by Novel Proprietary Platform

Opportunity to Create New Class of Immunotherapies

DiversiAb Platform

- **RAPID PROOF-OF-CONCEPT**
(90 days to CGMP)
- **NATURAL HUMAN ANTIBODIES**
(without human donors or serum)
- **MULTI-VALENT CAPABILITIES**
(by nature, & by design—multiple targets in one product)
- **TARGET AGNOSTIC**
(virus, bacteria, toxin, allergen)
- **SCALABLE, REPLICABLE, CONSISTENT PRODUCTION**



Product Development of Pipeline Assets:

Best-in-Class, First-in-Class & Unmet Needs

- Demonstrated clinical safety and efficacy
- Proof-of-platform with highly-mutating infectious disease
- Robust pipeline with broad therapeutic reach



Industry Partnering & Research Collaborations:

Monoclonal Discovery & Polyclonal Development/Production

- Multiple ongoing collaborations with global pharma
- Opportunities in monoclonal discovery, human immune globulins and therapeutic innovation



US Gov. Rapid Response Biodefense & Public Health Security:

Emerging Infectious Disease & Biothreats

- \$200M awarded for rapid & pandemic response
- Recognized as only therapeutic platform to address priority pathogens by World Health Organization
- Demonstrated *in vivo* efficacy to >12 targets

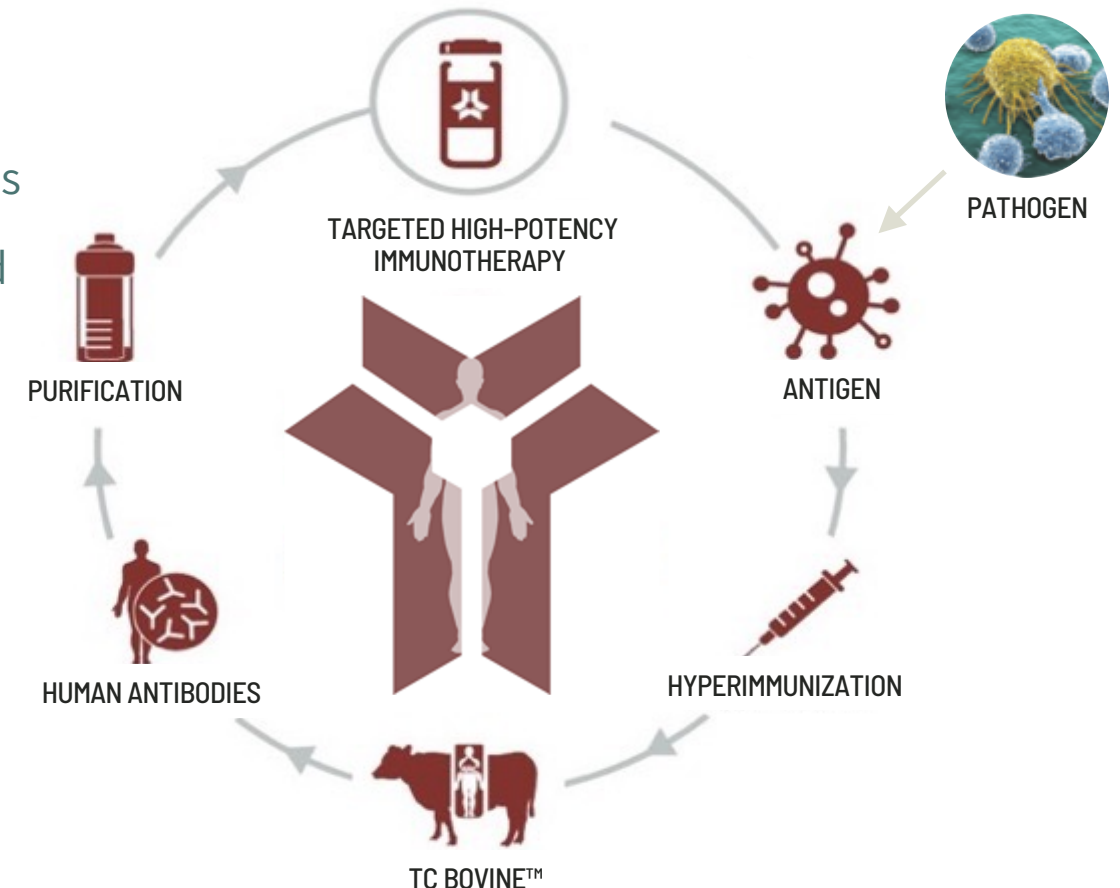


DiversitAb™ Platform



Advancing a new class of fully-human polyclonal Tc bovine-derived antibodies without the need for human serum

- Reliable, controlled, consistent production of diverse, high-titer, high-avidity, fully-human polyclonal antibodies
- Generated antibodies behave similarly to human-derived with ability to specifically target
- Proprietary immunization strategies and robust immune response drive extremely high potency
- Well-established and understood regulatory path as biologic through FDA-CBER
- Vertical integration enabling rapid, scalable development and production of multivalent products



Robust Pipeline with Broad Therapeutic Reach



	Candidate	Indication	Preclinical	Phase 1	Phase 2	Phase 3
Infectious Disease	SAB-176	SEASONAL INFLUENZA	Phase 1 and Phase 2a Challenge enrollment complete			Phase 1 full data readout; Phase 2a topline data expected 4Q2021
	SAB-185	COVID-19 (USG FUNDED)	Phase 3 (ACTIV-2) ongoing			NIH NIAID led
Autoimmune Disease	SAB-142	TYPE 1 DIABETES	Additional studies (IND-Enabling) expected to begin 1Q2022			
	SAB-142	TRANSPLANT (INDUCTION/REJECTION)	Additional studies (IND-Enabling) expected to begin 1Q2022			
	SAB-181	HUMAN IMMUNE GLOBULIN (IgG)	Pre-IND meeting discussion expected 4Q2021			

Government-funded clinical-stage program in Middle East Respiratory Syndrome (MERS) coronavirus

Ongoing discovery programs in oncology, infectious and idiopathic diseases

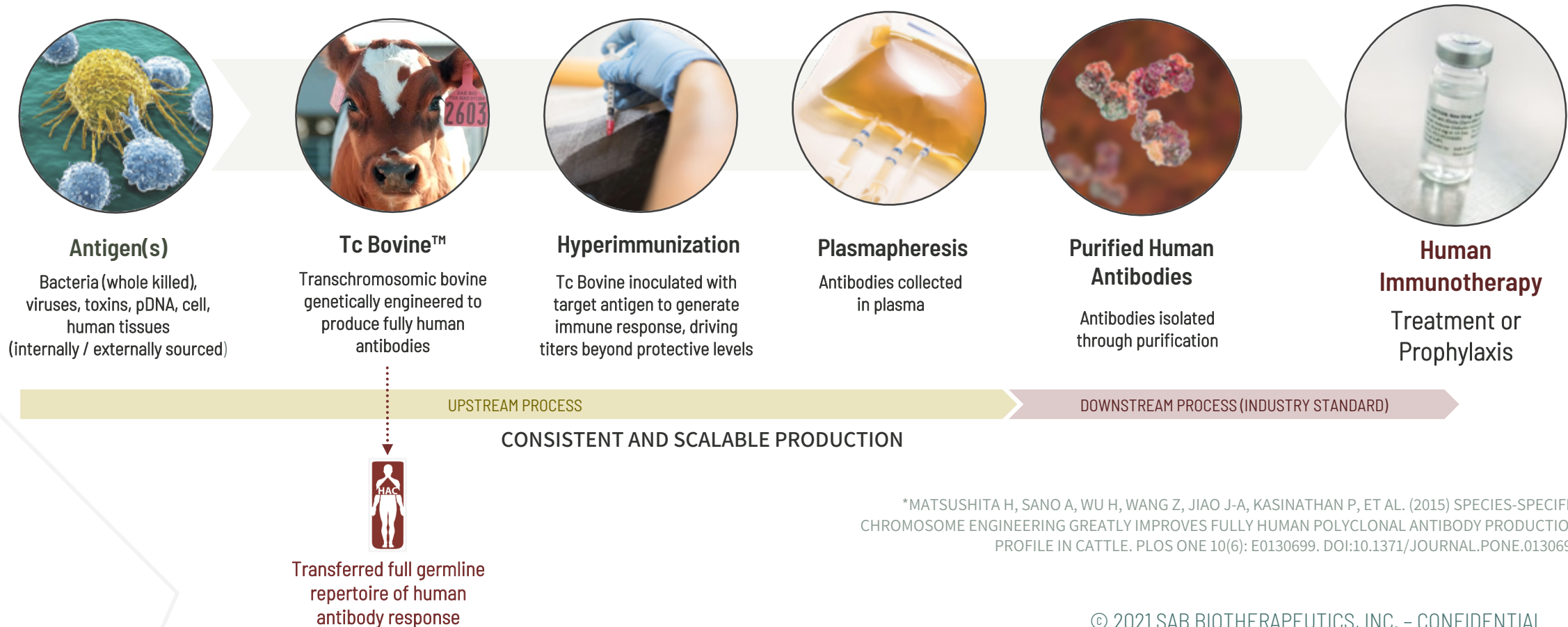


DIVERSITAB™ PLATFORM

Genetically-Engineered Therapeutic Engine Leveraging Natural Human Immune Response



Mimics or exceeds the way humans adaptively respond to disease conditions with polyclonal antibodies

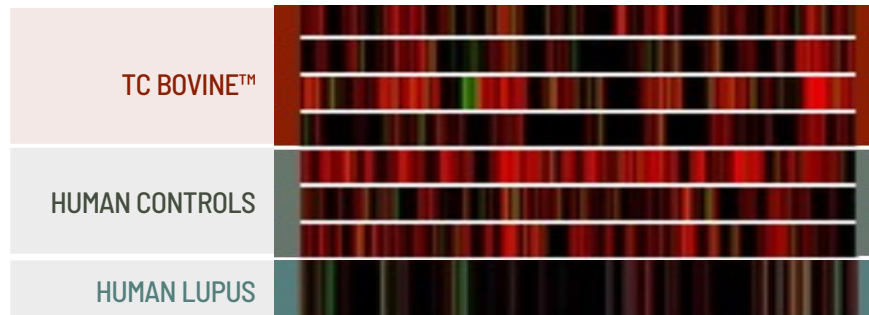


Fully-Human & Functional Antibodies



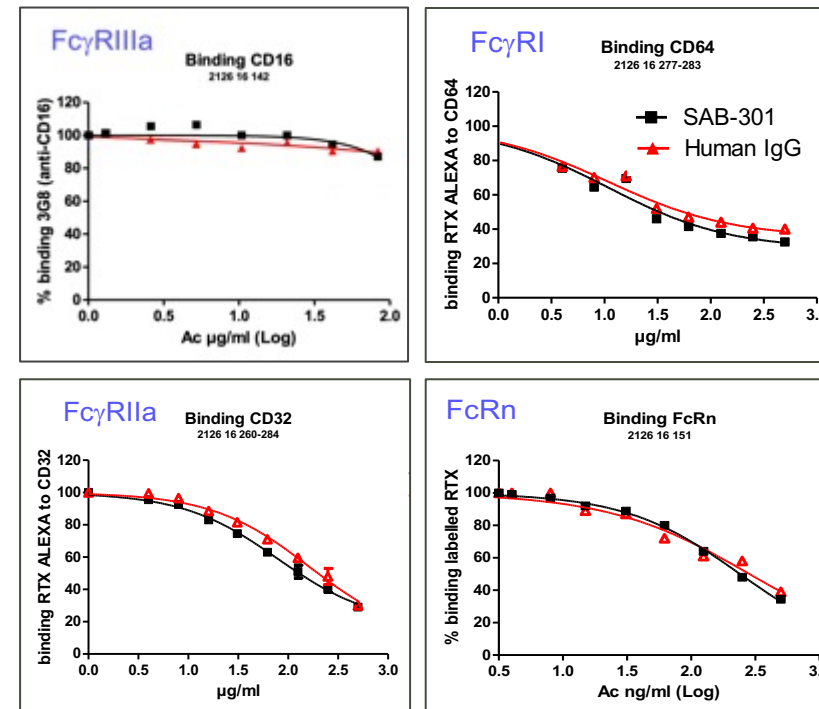
Rich Antibody Diversity

VDJ repertoire usage mimics human-derived diversity in variable region



Highly-Functional Fc Region

Matches full activation of effector cells and functional glycosylation / post translational modification



Clinically-Demonstrated Proof-of-Platform

Completed Government-Funded Phase 1 Clinical Trial

MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS (MERS-COV)



Confirmation of human antibody attributes & behavior

- Baseline pharmacokinetics (PK) analysis completed with half-life of 28.5 days; identical to human-derived IgG
- No anti-drug antibodies detected despite long half-life
- No affinity ligand immunogenicity
- No immunogenicity to bovine plasma proteins

Well tolerated with no drug-related SAE's

- 38 healthy volunteers
- 6 cohorts, IV, escalating dose
- Dose range: 1.5 mg/kg to 50 mg/kg

Demonstrated Human Safety and Efficacy

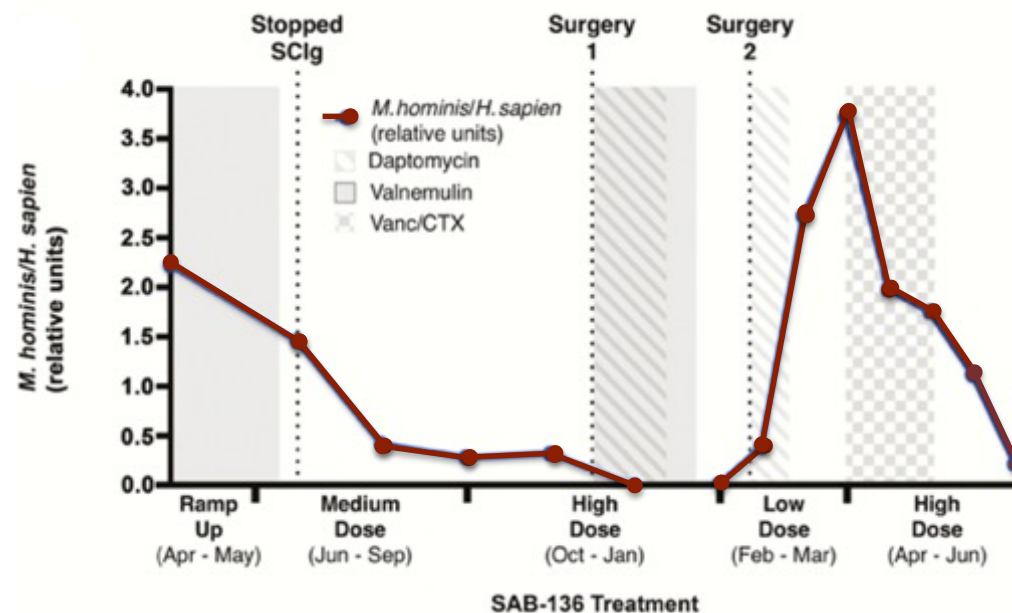
Confirms Feasibility of Multi-dosing



High-dose therapy resulted in improved clinical parameters associated with reduced *M. hominis* burden following two subsequent infections



Open wound persisted
~7 years prior to
treatment



Same area following
treatment with SAB-136



JARED N SILVER, CAMERON D ASHBAUGH, JACOB J MILES, HUA WU, GREGORY T MARECKI, JOYCE K HWANG, JIN-AN JIAO, MARK ABRAMS, EDDIE J SULLIVAN, DUANE R WESEMAN, DEPLOYMENT OF TRANSCROMOSOMAL BOVINE FOR PERSONALIZED ANTIMICROBIAL THERAPY, CLINICAL INFECTIOUS DISEASES, VOLUME 66, ISSUE 7, 1 APRIL 2018, PAGES 1116-1119

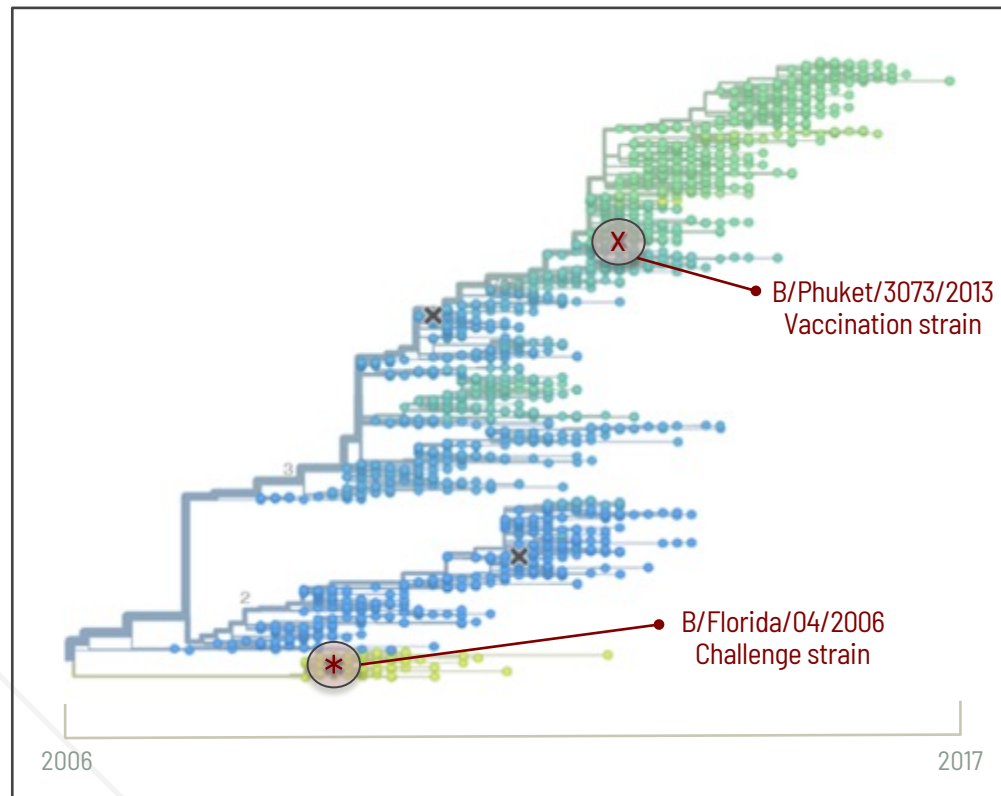
Efficacy Against Mutational Drift

Adaptive & Cross Reactive to Mutating Strains



Highly-Mutational Influenza Virus

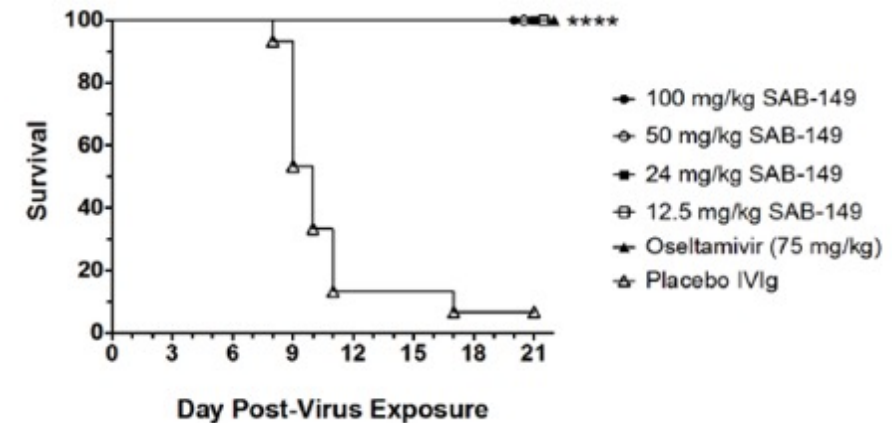
BYAM PHYLOGENIC TREE



SOURCE: NEXTFLU AT [HTTPS://NEXTFLU.ORG/VIC/12Y/](https://nextflu.org/vic/12y/)

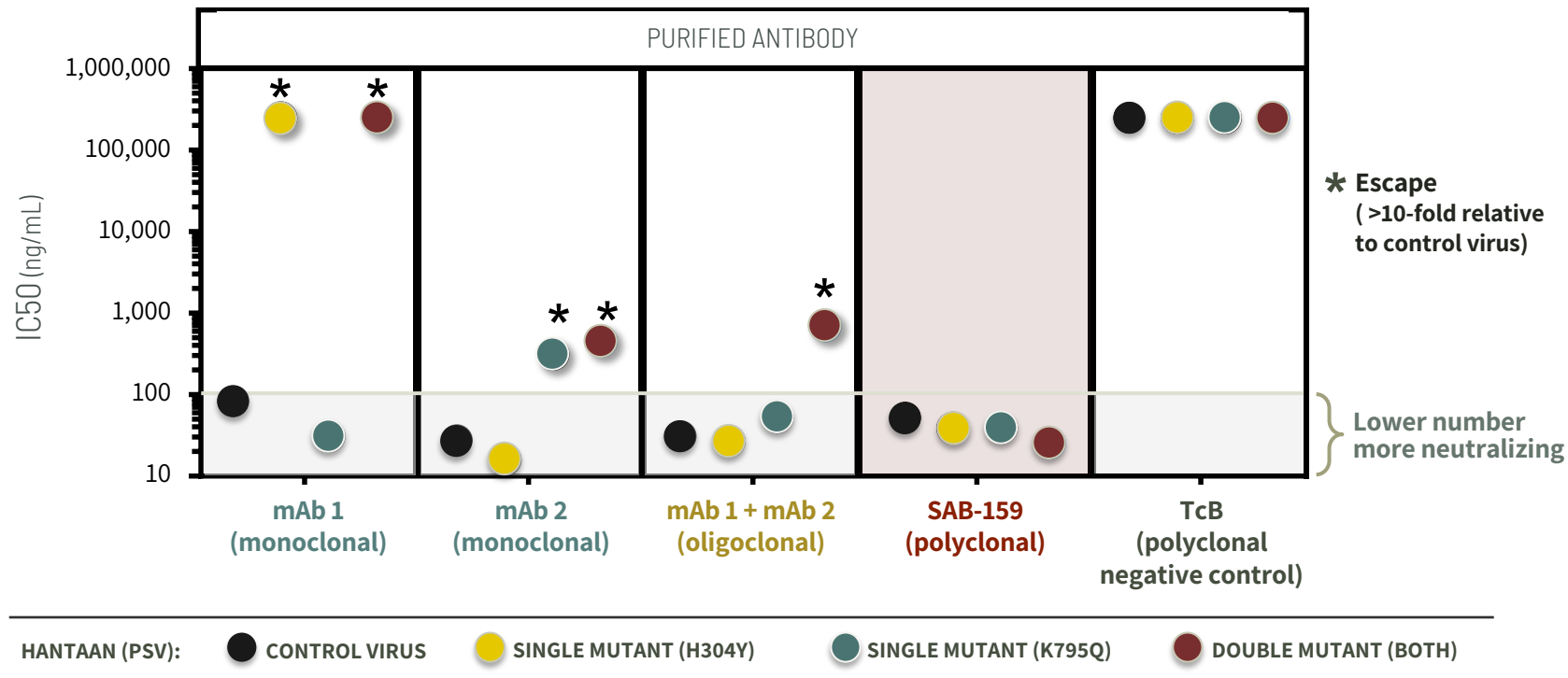
100% Protection at All Dose Levels in Influenza Mouse Challenge

Antibodies produced to **B/Phuket/3073/2013**
protected against **B/Florida/04/2006**



Neutralization of Monoclonal Cocktail Escape Mutations

Polyclonal SAB-159 Neutralizes mAb Escape Mutants

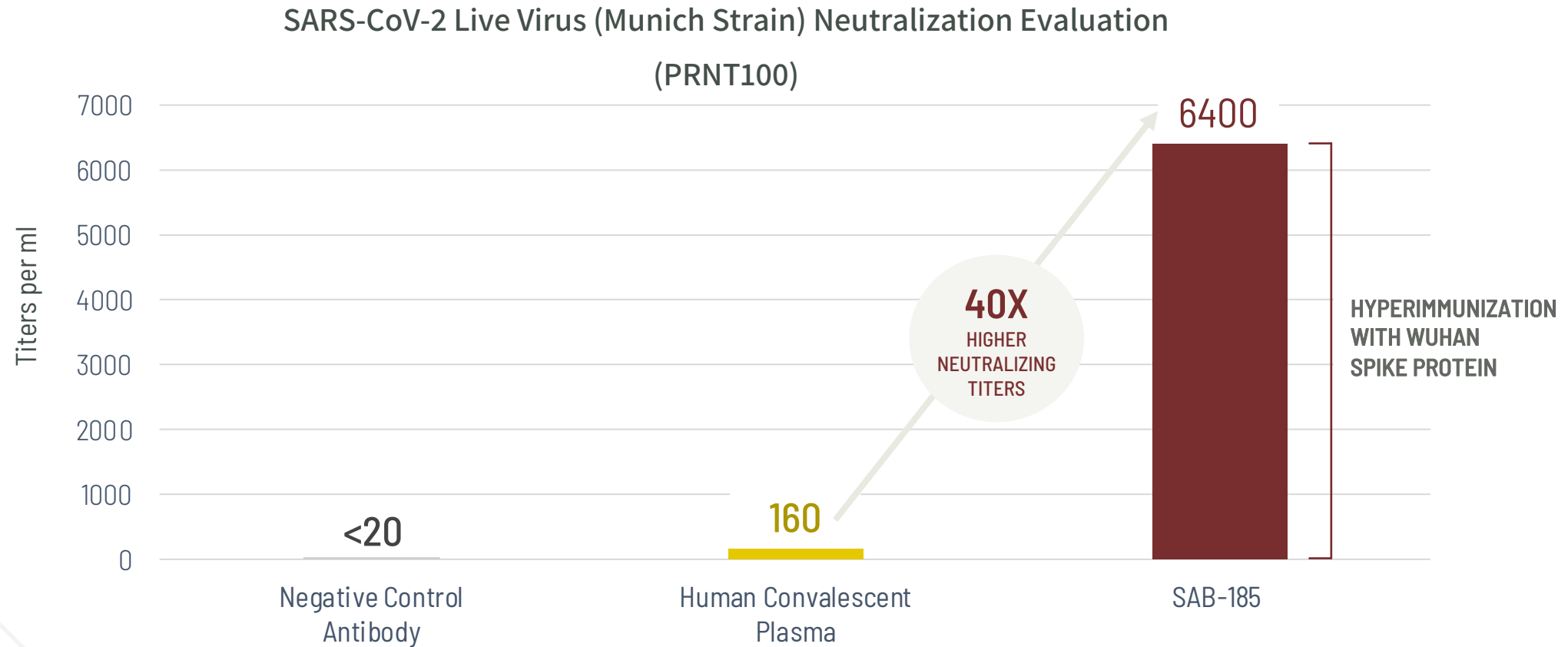


PERLEY CASEY C., BROCATO REBECCA L., WU HUA, BAUSCH CHRISTOPH, KARMALI PRIYA P., VEGA JEREL B., COHEN MELANIE V., SOMERVILLE BRANDON, KWILAS STEVEN A., PRINCIPE LUCIA M., SHAMBLIN JOSHUA, CHIVUKULA PADMANABH, SULLIVAN EDDIE, HOOPER JAY W. ANTI-HFRS HUMAN IGG PRODUCED IN TRANSCROMOSOMIC BOVINES HAS POTENT HANTAVIRUS NEUTRALIZING ACTIVITY AND IS PROTECTIVE IN ANIMAL MODELS, FRONTIERS IN MICROBIOLOGY, VOLUME 11, 2020, PAGE 832



PIPELINE PROGRAMS

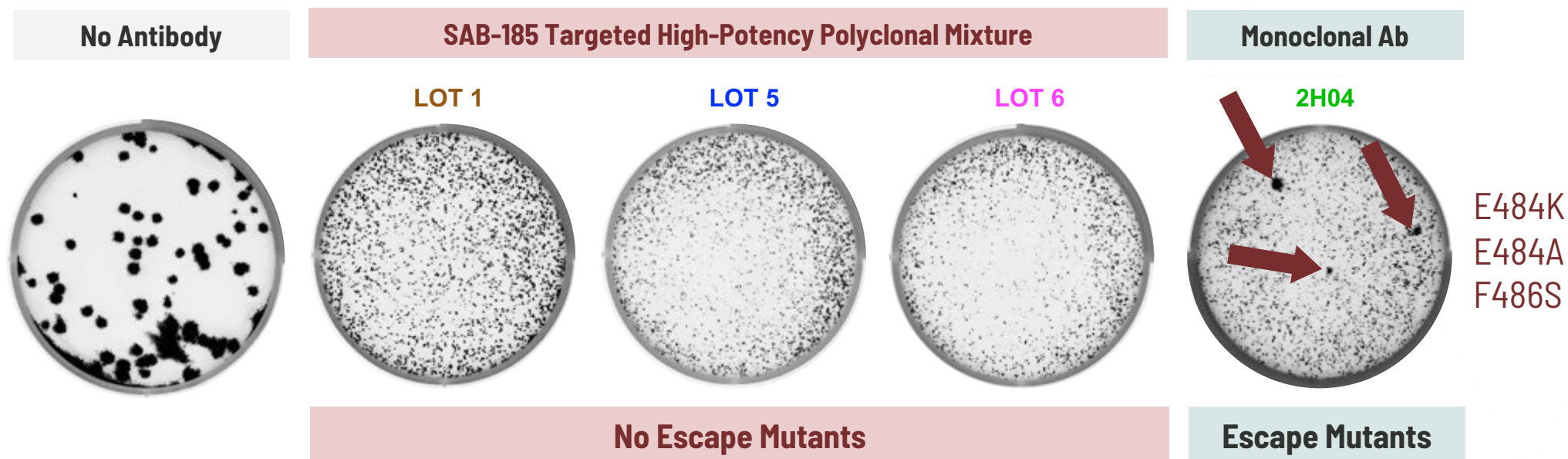
Highly-Potent: SAB-185 Exceeds Titers of Human Convalescent Plasma by 40X



WILLIAM B. KLIMSTRA, PH.D. DEPARTMENT OF IMMUNOLOGY ; MEMBER, CENTER FOR VACCINE RESEARCH; THE UNIVERSITY OF PITTSBURGH

Addresses Escape Mutants: SAB-185 Superior to Monoclonal Antibody

Selection for VSV-SARS-CoV-2 Wild Type Escape Mutation



WASHINGTON UNIVERSITY SCHOOL OF MEDICINE-ST. LOUIS; 15 JAN 2021

SAB-185 Demonstrated High Neutralization Potency Against Mutants in Circulating Strains

In vitro Neutralization Potency Against VSV-SARS-CoV-2 Mutants

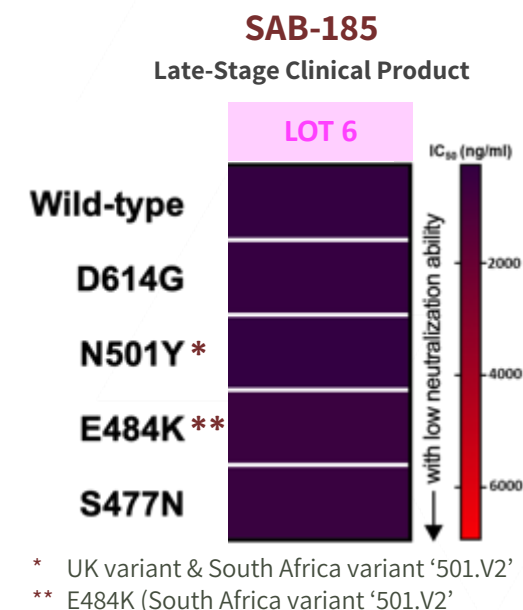
VARIANTS	WT IC50 (ng/ml)	Mutation IC50 (ng/ml)	IC50 ratio (Mu:WT)*
B.1.617.1 [Kappa]	48.09	120.9	2.6
B.1.617.1 (-T95I) + V382L + D1153Y	48.09	120.9	2.6
B.1.617.2 [Delta]	49.68	138.9	2.8
B.1.617.2 + K417N	77.20	272.8	3.6
C.37 [Lambda]	78.22	74.4	1.0
B	80.94	279.0	3.4
B.1.523	80.10	229.3	3.0
B.1.525 [Eta]	80.94	279.4	3.5

<5 NO SIGNIFICANT IMPACT 5-10 MILD IMPACT 10-50 MODERATE IMPACT 50 COMPLETE LOSS

*The average IC50 ratio of Mu/WTD614G

UNITED STATES FOOD AND DRUG ADMINISTRATION, CENTER FOR BIOLOGICS EVALUATION AND RESEARCH (CBER), WEISS LABORATORY, AUGUST 2021.

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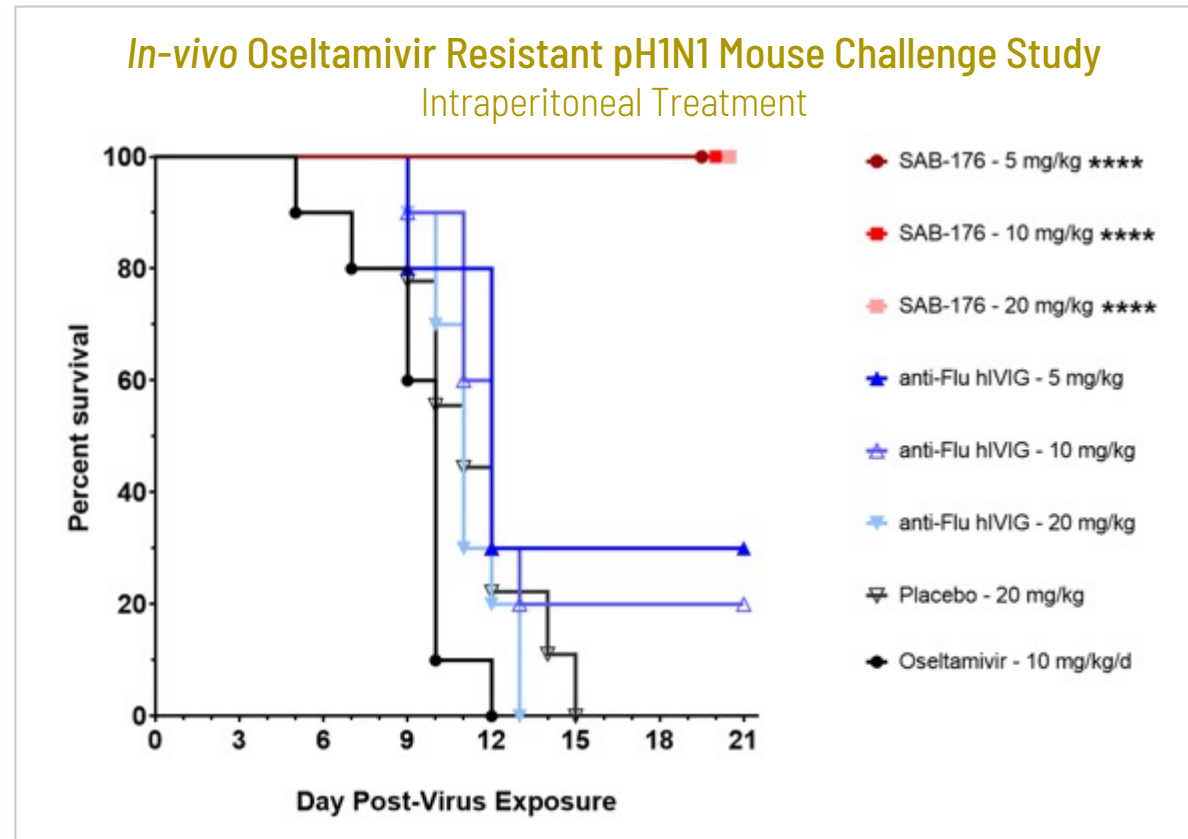
WASHINGTON UNIVERSITY SCHOOL OF MEDICINE-ST. LOUIS; 15 JAN 2021



Overcomes Resistance: SAB-176 Demonstrated *In Vivo* Efficacy Against Oseltamivir-Resistant Viruses



Single dose of SAB-176 at 5mg/kg provided **100% protection** from mortality
Mice treated with anti-Flu hIVIG at 20mg/kg had **0% survival**



SAB-142: Potential Breakthrough Applicable to Many Autoimmune Diseases

Superior to Widely-Used Animal Serum-Derived Immune Globulins ATGAM & Thymoglobulin

Limitations of approved animal serum-derived ATG products:

- Serum sickness and development of anti-drug antibodies (ADA) have limited use
- Rates of serum sickness are >30% so repeat dosing is not recommended
- Physicians reserve use for transplant induction or rejection – but not both
- These issues limit use in new indications such as delaying/preventing onset of type 1 diabetes



Human alternative could have **significant efficacy, safety, and dosing advantages** over ATG animal products



In the **established transplant market**, a fully-human ATG with reduced risk of serum sickness AEs could **rapidly penetrate and expand existing use**

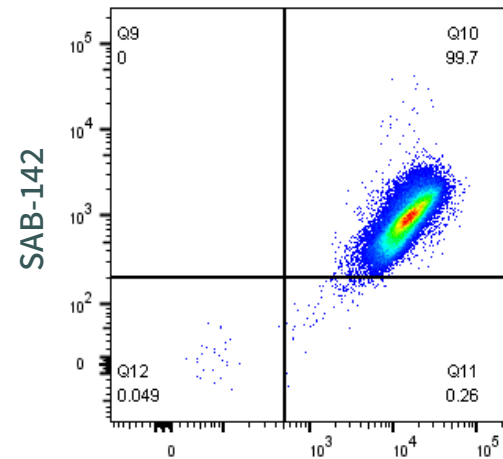


Significant market potential in delaying or preventing new-onset type 1 diabetes based on Phase 2 clinical trial results of rabbit ATG

SAB-142: Comparable Mode of Action to Approved Products

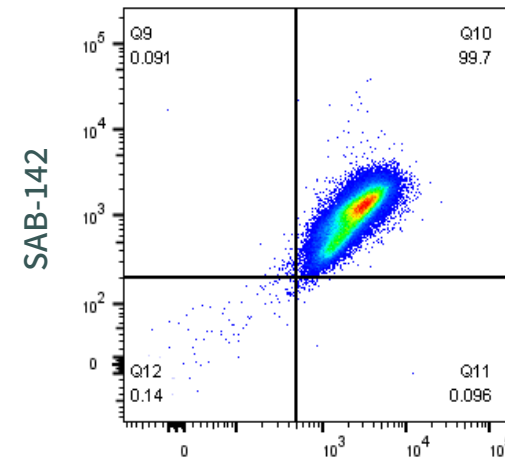


Tc Bovine Human-PB, Rabbit THYMO-AF488, Equine ATGAM-AF488 and Anti-CD3-APC



RABBIT THYMO-AF488

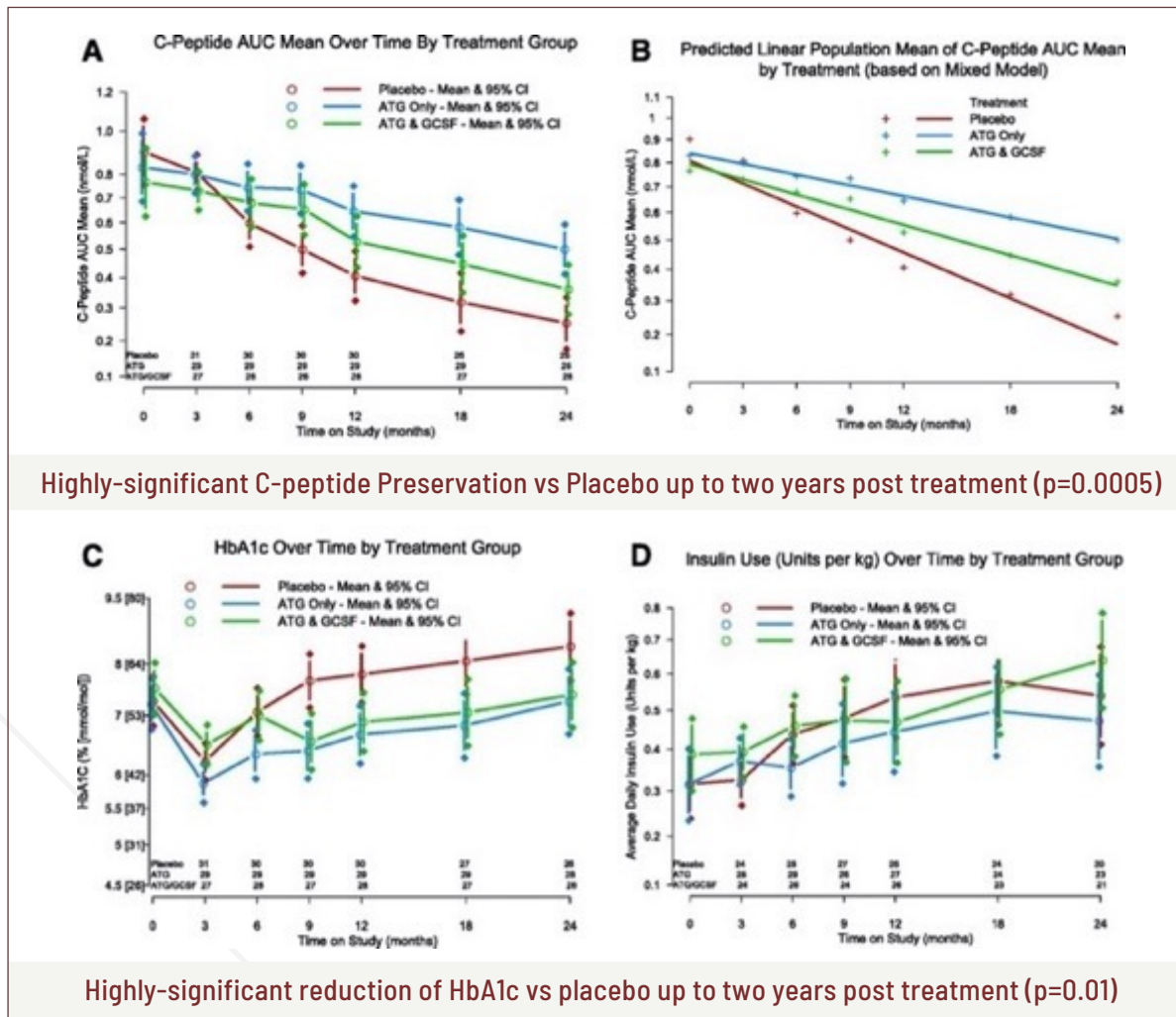
Thymoglobulin
Anti-thymocyte Globulin (Rabbit)



EQUINE ATGAM-AF488

Atgam®
lymphocyte immune globulin,
anti-thymocyte globulin (equine)
250 mg protein
50 mg/mL

Single-dose rATG Shows Sustained Benefit in Type 1 Diabetes Over Two Years



*“Head-to-head comparison testing suggests <SAB’s> product should target the same cells as the currently approved products, and therefore should have **similar beneficial effects...***

*At the same time, the human IgG composition will **avoid inducing serum sickness**. In addition to preventing the short-term insulin resistance and beta cell dysfunction, this will also **open the possibility of re-dosing** with this agent without inducing the major immune reaction that can occur with the current agents in the presence of pre-formed anti-rabbit antibodies.”*

– Michael Haller, MD



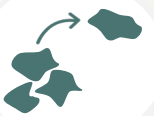


Professor Pediatrics, Endocrinology; Type 1 Diabetes Researcher
SAB Scientific Advisory Board

MICHAEL J. HALLER ET AL. DIABETES 2019;68:1267-1276

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Unlocking Full Potential of Antibodies for Treatment of Cancers

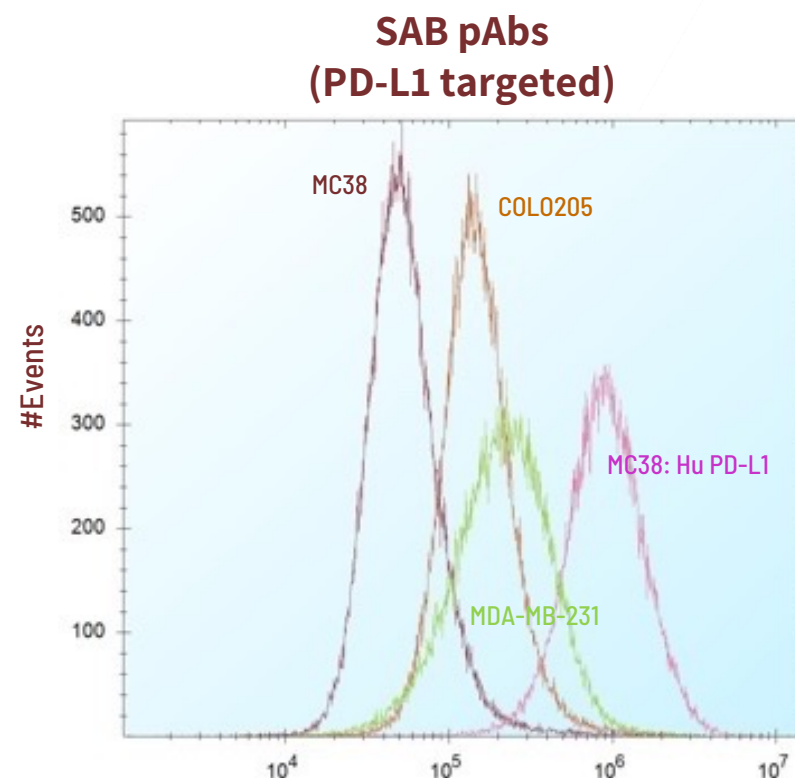
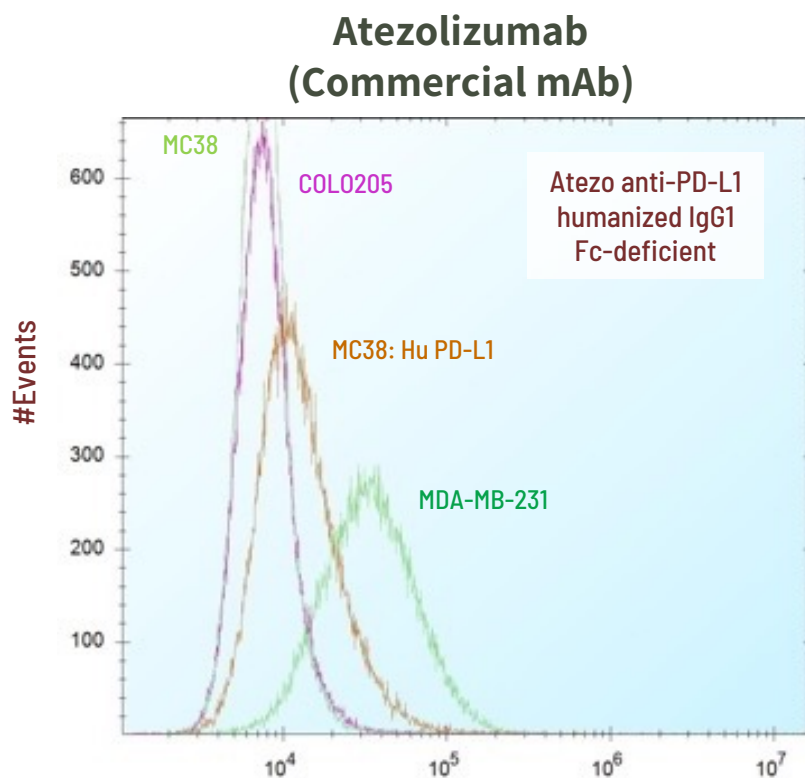
SAB's Human Polyclonal Antibodies Offer Many Potential Advantages as Cancer Therapies

	Multi-targeting	Unique ability to simultaneously target multiple modalities of cancer in a single product
	Multivalency	Leverages native immune response–polyclonal antibodies–with multiple epitope binding to address mutation
	Metastasis Prevention	Literature* suggests human polyclonal IVIG antibodies may help prevent tumor metastases
	Effector Function	Enhanced effector functions (e.g., Antibody-Dependent Cellular Cytotoxicity)
	Replicability	SAB's DiversitAb™ platform has successfully developed antibodies against a variety of oncology targets

*Fishman et al. *Int J Oncol.* 2002 Oct;21(4):875-80.

SAB pAbs Show Increased Binding Compared to mAb at Same Target Concentrations

Comparative PD-L1 Cell Binding Analysis



Highly-Experienced Management Team



Eddie J. Sullivan, PhD

PRESIDENT & CEO / CO-FOUNDER

- 20 years new technology development
- 25+ years biotech
- Former Japanese pharma
- BIO Executive Committee
- Reproductive physiologist



Russell Beyer, MBA, CMA

CHIEF FINANCIAL OFFICER

- 25+ years Pharma & Fortune 100
- Country/region CFO at AstraZeneca, Clorox
- Track record of driving growth, integrations
- Strategic financial, operations, reporting, planning



Melissa Ullerich

CHIEF CORPORATE COMMUNICATIONS & INVESTOR RELATIONS OFFICER

- 20+ years biotech
- Disruptive technologies
- Start-up to public companies
- Financings, IPO, M&A, corporate development



Tom Luke, MD

CHIEF MEDICAL OFFICER

- 20+ years clinical studies
- Global infectious disease
- Naval Medical Research Center
- 30+ years military service



Rick Finnegan

CHIEF BUSINESS OFFICER

- 35+ years pharma
- Business development & program management
- Market development and new product launch



Charles Randall, Jr., MBA

CHIEF STRATEGY OFFICER

- Organizational structuring
- Corporate development
- Business strategy
- Asset management
- Market Intelligence



Kipp Erickson, PhD

CHIEF OPERATING OFFICER

- 30+ years global pharma
- Human & animal drug discovery
- Product development
- Respiratory scientist



Christoph Bausch, PhD, MBA

CHIEF SCIENCE OFFICER

- 15+ years platform technology commercialization
- Sigma Aldrich
- Stowers Institute Postdoc



Jerry Pommer, MSc, PAS

CHIEF COMPLIANCE OFFICER

- 30+ years Reg/QA (FDA, USDA, NIH)
- Transgenic regulation
- Diplomat status (DACAWS)
- BIO GE Animal Policy Committee



Scaled Infrastructure & Capacity



Tc Bovine & Plasma Production Facility



Plasma Purification Suite (50L)



Manufacturing Facility (200L)

SAB Biotherapeutics Investment Overview

- **Clinical-stage, de-risked human polyclonal antibody platform applicable to broad range of indications**
 - Significant potential clinical advantages over monoclonal antibodies and animal-derived polyclonal antibodies
 - Applicable to diverse therapeutic areas (TA) including autoimmune disorders, oncology, infectious disease and inflammation
 - Multiple clinical-stage programs addressing diseases with high unmet needs
 - Awarded ~\$250M from government and global pharma collaboration sources
- **Leveraging genetically-engineered cows for targeted, rapid production of fully-human, highly-potent antibodies at scale**
 - Transchromosomal (Tc) bovine herds produce fully-human antibodies validated by significant body of clinical and preclinical data
 - Demonstrated human safety and tolerability with potential for multi-dosing and multiple routes of administration
 - Proven efficacy against mutational drift/variant escape, potential to simultaneously address multiple targets
 - Enables reliable, controlled, consistent production of diverse, high-titer, high-avidity human antibodies
 - Highly-scalable production, with demonstrated ability to rapidly advance from concept to clinic
 - Well-established and understood biologics regulatory pathway through FDA-CBER
- **Experienced management team and outstanding Scientific Advisory Board**
- **Near-term catalysts represent attractive investment opportunity**
 - Multiple value inflection points including clinical data read-outs represent potential value inflection events
 - Potential broad opportunities in new product development, rapid response and discovery collaborations

Multiple Catalysts through YE2022



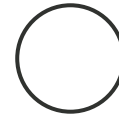
Proof-of-concept
established for
DiversitAb™
Platform



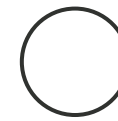
SAB-176
for seasonal
influenza
Phase 2a
Challenge
Trial fully
enrolled



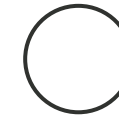
SAB-185
for COVID-19
Phase 1, 1b, 2
fully enrolled;
graduated to
Phase 3 in
ACTIV-2
adaptive trial
at interim
analysis



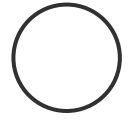
SAB-176
for seasonal
influenza
Phase 1 data
readout and
Phase 2a
Challenge
Trial topline
data
expected
in **4Q2021**



SAB-142
for Type 1
Diabetes and
Transplant
additional
studies (IND-
Enabling)
expected to
begin
1Q2022



SAB-181
for IgG
pre-IND
meeting
expected
in **4Q2021**

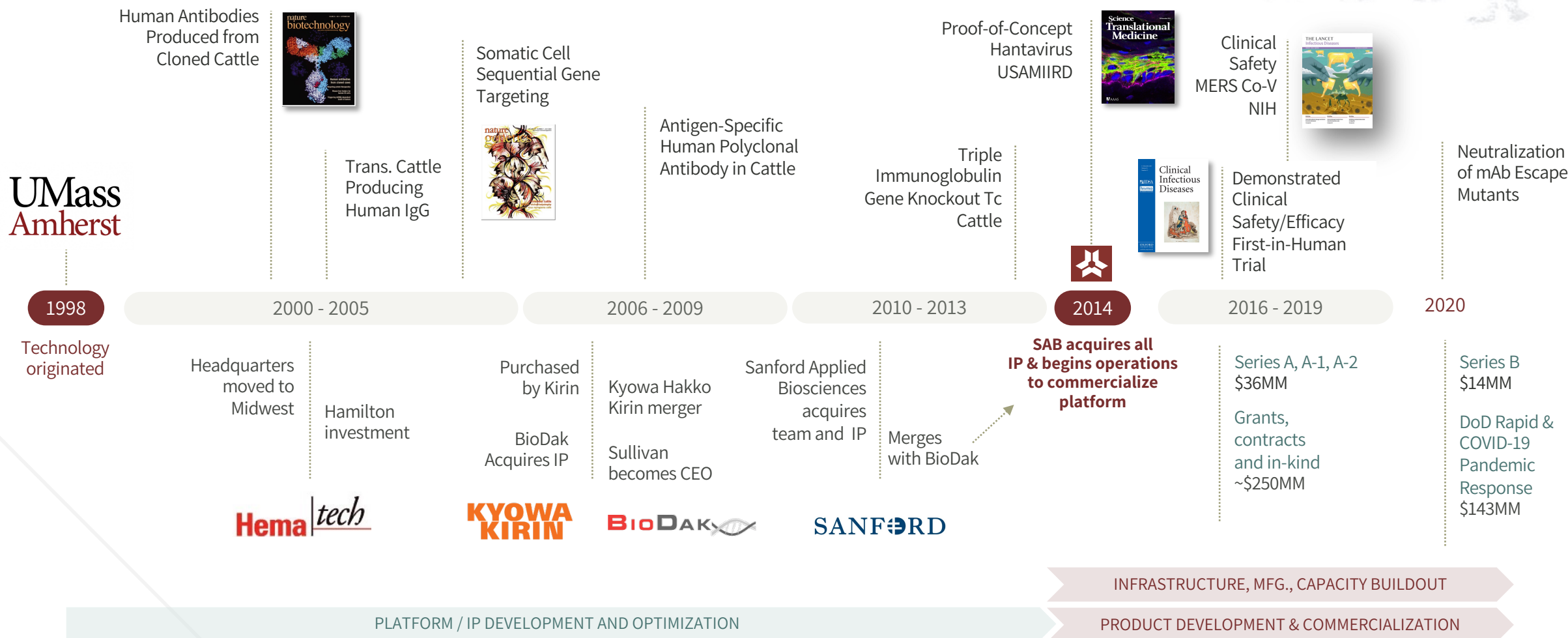


SAB-162
oncology
proof-of-
concept
data
expected
in **1H2022**



APPENDIX

Company History and Platform Evolution



40+ FDA Approved Polyclonal Antibody Products through the Center for Biologics Evaluation & Research

Creating a New Class of Immunotherapies

