New ideas for a growing problem : A NEW AND OLD TREATMENT FOR ANTIBIOTIC RESISTANCE

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Forward Looking Statements

This presentation contains "forward-looking" statements that involve risks, uncertainties and assumptions. If the risks or uncertainties materialize or the assumptions prove incorrect, our results may differ materially from those expressed or implied by such forward-looking statements. All statements other than statements of historical fact could be deemed forward-looking, including, but not limited to: our estimates regarding anticipated operating losses, capital requirements and needs for additional funds; our ability to raise additional capital when needed and to continue as a going concern; our ability to manufacture, or otherwise secure the manufacture of, sufficient amounts of our product candidates for our preclinical studies and clinical trials; our clinical development plans, including planned clinical trials; our research and development plans, including our clinical development plans; our ability to select combinations of phages to formulate our product candidates; our development of bacteriophage-based therapies; the potential use of bacteriophages to treat bacterial infections; the potential future of antibiotic resistance; our ability for bacteriophage therapies to disrupt and destroy biofilms and restore sensitivity to antibiotics; our planned development strategy, presenting data to regulatory agencies and defining planned clinical studies; the expected timing of additional clinical trials, including Phase 1b/Phase 2 or registrational clinical trials; our ability to manufacture and secure sufficient quantities of our product candidates for clinical trials; the drug product candidates to be supplied by us for clinical trials; the potential for bacteriophage technology being uniquely positioned to address the global threat of antibiotic resistance; the safety and efficacy of our product candidates; our anticipated regulatory pathways for our product candidates; the activities to be performed by specific parties in connection with clinical trials; our ability to successfully complete preclinical and clinical development of, and obtain regulatory approval of our product candidates and commercialize any approved products on our expected timeframes or at all; our pursuit of additional indications; the content and timing of submissions to and decisions made by the U.S. Food and Drug Administration (the "FDA") and other regulatory agencies; our ability to leverage the experience of our management team and to attract and retain management and keep management and other key personnel; the capacities and performance of our suppliers, manufacturers, contract research organizations ("CROs") and other third parties over whom we have limited control; our ability to staff and maintain our production facilities under fully compliant current Good Manufacturing Practices; the actions of our competitors and success of competing drugs or other therapies that are or may become available; our expectations with respect to future growth and investments in our infrastructure, and our ability to effectively manage any such growth; the size and potential growth of the markets for any of our product candidates, and our ability to capture share in or impact the size of those markets; the benefits of our product candidates; potential market growth and market and industry trends; maintaining collaborations with third parties including our partnership with the Cystic Fibrosis Foundation and the U.S. Department of Defense (the "DoD"); potential future collaborations with third parties and the potential markets and market opportunities for product candidates; our ability to achieve our vision, including improvements through engineering and success of clinical trials; our ability to meet anticipated milestones for 2024; our ability to be a leader in the development of phage-based therapeutics; the expected use of proceeds from the $21.6 million DoD grant; the effects of government regulation and regulatory developments, and our ability and the ability of the third parties with whom we engage to comply with applicable regulatory requirements; the accuracy of our estimates regarding future expenses, revenues, capital requirements and need for additional financing; our expectations regarding future planned expenditures; our ability to achieve and maintain effective internal control over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act; our ability to obtain, maintain and successfully enforce adequate patent and other intellectual property protection of any of our products and product candidates; our ability to protect our intellectual property, including pending and issued patents; our ability to operate our business without infringing the intellectual property rights of others; our ability to advance our clinical development programs, which could be impacted by the COVID-19 pandemic; the expected impact of the COVID-19 pandemic on our operations and any statements of assumptions underlying any of the items mentioned; and statements of belief and any statement of assumptions underlying any of the items mentioned. These statements are based on estimates and information available to us at the time of this presentation and are not guarantees of future performance. Actual results could differ materially from our current expectations as a result of these risks and uncertainties, which include, without limitation, risks related to the ability of our lead clinical candidates, AP-PA02 and AP-SA02 (including any modifications thereto) to be more effective than previous candidates; our ability to enhance AP-PA02 to treat both CF and NCFB patients; our ability to develop products as expected; our expected market opportunity for our products; our ability to sufficiently fund our operations as expected, including obtaining additional funding as needed, and to refinance, repay or restructure its debt; and whether Armata will incur unforeseen expenses or liabilities. You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, we undertake no obligation to update publicly any forward-looking statements for any reason to conform these statements to actual results or to changes in our expectations except as required by law. We refer you to the documents that we file from time to time with the Securities and Exchange Commission, including our most recently filed Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. These documents, including the sections therein entitled "Risk Factors," identify important factors that could cause the actual results to differ materially from those contained in forward-looking statements. In addition, this presentation also contains estimates, projections and other information concerning our industry, our business, and the markets for our product candidates, as well as data regarding market research, estimates and forecasts prepared by our management. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. These statements are based upon information available to us as of the date of this presentation, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information.

Phages Are a Novel Biologic Anti-Infective with Distinct MOA from Antibiotics and Significant Advantages for the Fight Against AMR

Key Advantages of Phage Therapy

Alternative to broad spectrum antibiotics; Solution to address antibiotic-induced microbial resistance

- Reduced antibiotic use slows resistance development
- Phage activity independent of antibiotic resistance, including MDR infections
- Protects the normal human microbiome

Agile development approach

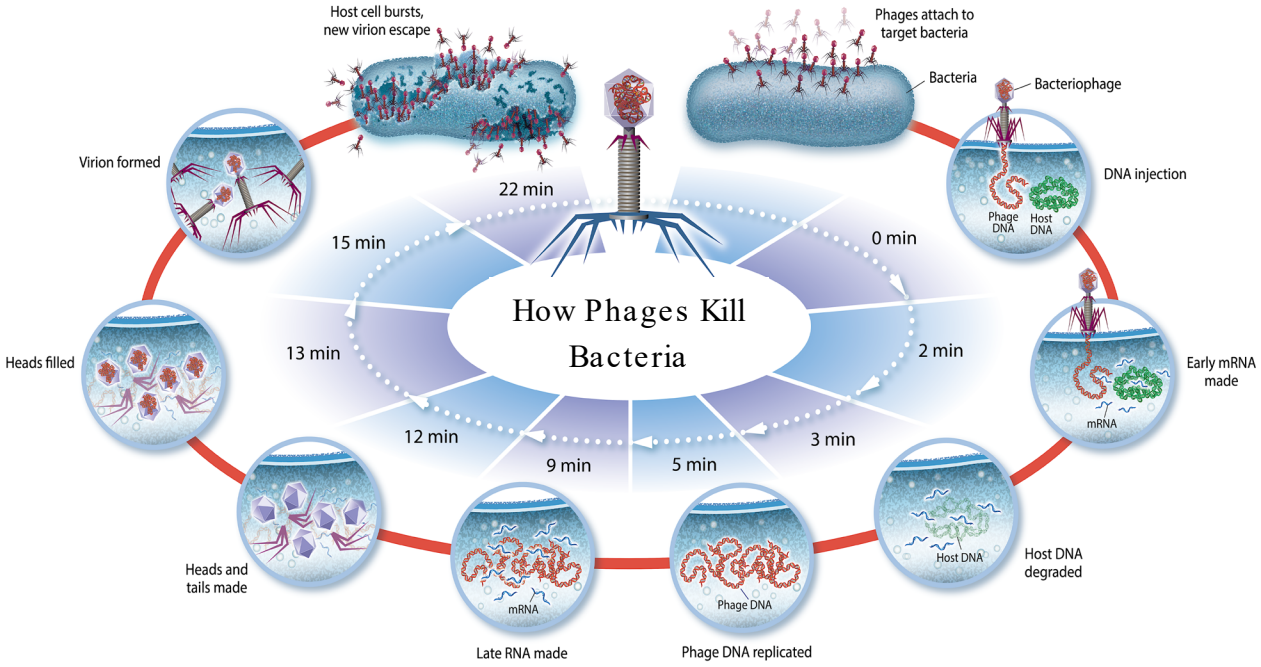
- Potential for product modifications as clinical isolate landscape evolves, both during development and after launch

Parallel clinical development for chronic and/or acute infections

- As alternative to, or synergistic to, current antibiotic SOC

Safety benefits and historical data

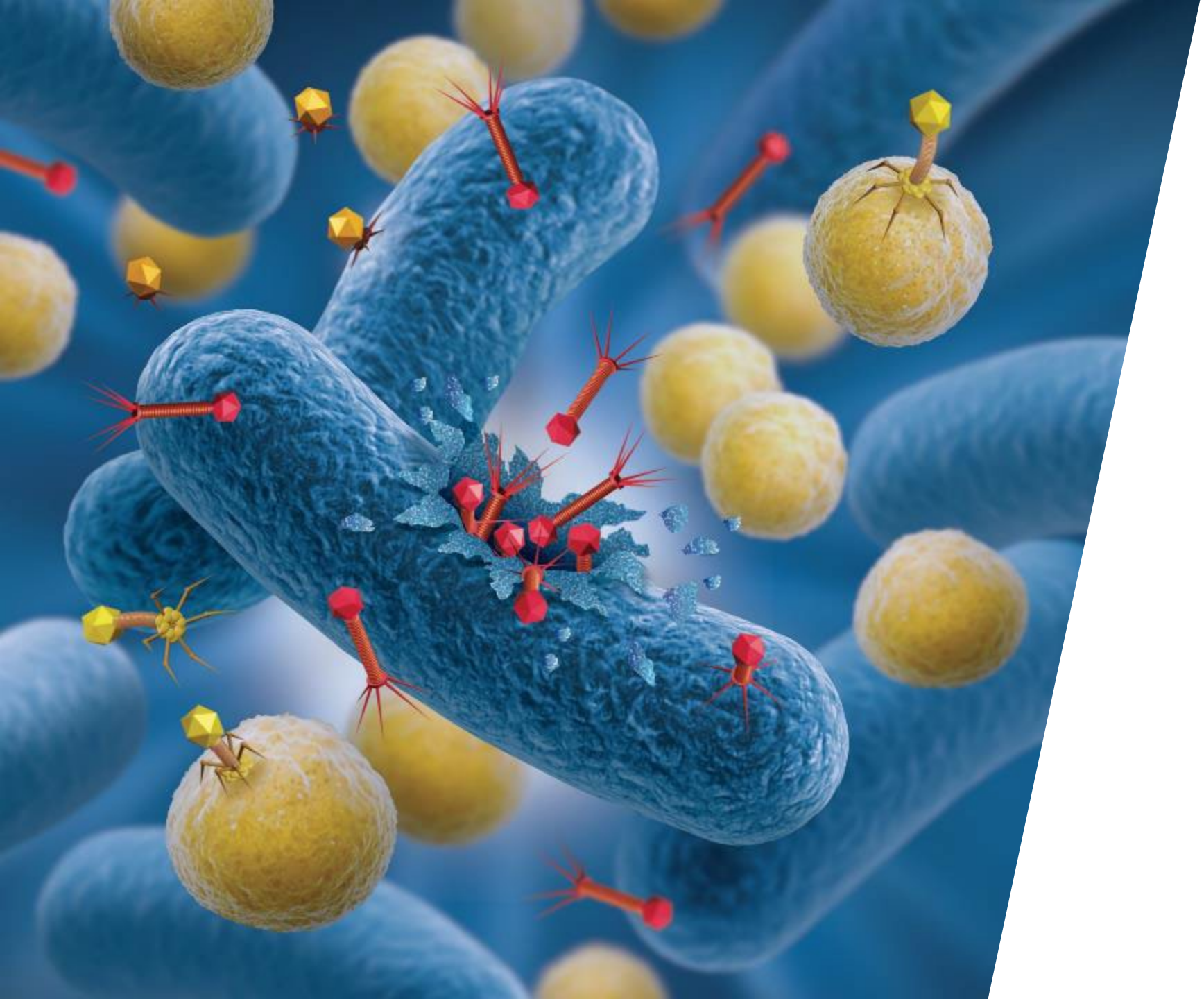
- Species-specific, front-line therapy eliminates microbiome disruption that occurs with traditional antibiotics
- Decades of published data of therapeutic use in Eastern Europe



Courtesy of: Charles Vitek, MD, MPH
Rear Admiral and Assistant Surgeon General, US Public Health Service; Regional Director, Eastern Europe and Central Asia (EECA) Regional Office; U.S. Centers for Disease Control and Prevention

Greetings from Tbilisi where I saw this billboard the other day and thought you would enjoy it. Only in the home of the Eliava Institute, does a bacteriophage clinic have its own billboard. [the big yellow letters are literally 'Bacteriophage Clinic']

I also congratulate you on moving the anti-pseudomonal and -staph products forward and cross my fingers for their phase 3's. We are working in Ukraine where the most widely prevalent AMR organisms in both the wounded and other hospital patients overall are highly resistant Kleb pneumoniae; the need is out there and growing.



Phages highly effective BUT they are a biologic – meaning they are live - living viruses that must be alive to be effective and are grown on their specific host and ultra-purified while not losing potency

So Development is MORE complicated YOU MUST Define the phage host range, manufacturing, and stability and finally patient selection for clinical trials

- Phage host range
- Phage manufacturing potential
- Phage stability

Upstream Processing (USP) – First step in bench to bedside

- *Upstream process development provides the necessary transition from the laboratory environment to a manufacturing environment where the target product is produced*
- *Understanding the biology of the phage infectious cycle remains crucial in the design of upstream processes.*
- *This cycle consists of adsorption of the phage to the host cell, injection of the genetic material (also called penetration), amplification of the phages and the lysis of the host.*
- *Phage replication within the context of manufacturing is driven by three main parameters that need to be considered:*
  - *(i) adsorption constant (the rate at which phages attach to bacteria),*
  - *(ii) latency time (the time between attachment to lysis), and*
  - *(iii) burst size (the number of phages released from a bacterium).*

Host Stability

- *In the production of phages for medicinal use, the genetic stability of host and the host-specific phage remains crucial.*
- *Because, as the host bacteria undergoes spontaneous mutations throughout the production process, they may become resistant to phage of interest or the phage may differ from the desired final phage structure that leads changes in the function, productivity, and yield.*
- *Therefore, the spontaneous mutation rates of both host bacteria and phage(s) is of paramount importance*

Lysate to Drug Substance

From phage and all the contaminates to pure phage

This is the very key to the effectiveness – pure and potent phages

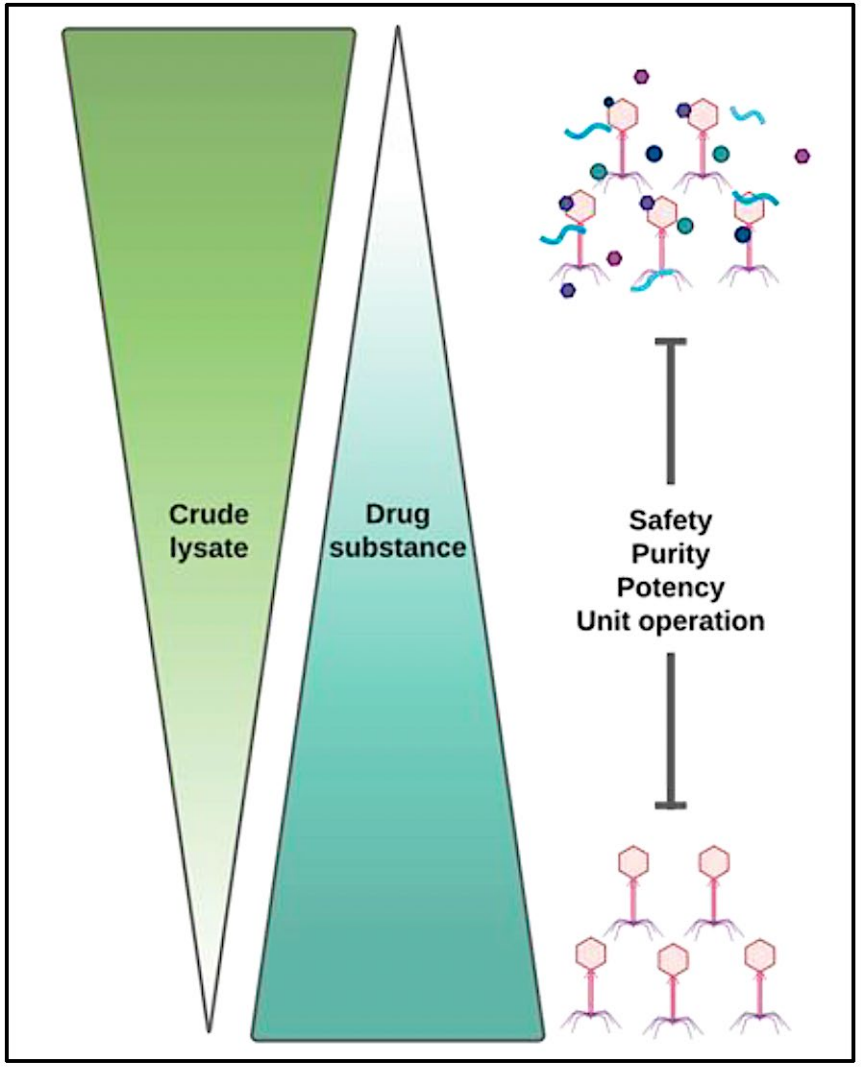


Figure 4. It is important to realize that crude lysate starts becoming DS and needs to be treated as such. The process developer should consider the critical quality attributes that are measured along the downstream separation cascade.

Proving phages work

Trial Designs

Superiority:

Non-inferiority:

In the United States – open label, compassion use or combination of those will most likely not yield a pathway to licensure

Compassionate use

Purity and reproducibility not as critical

- Unfortunately where the field has been for decades
- Is not a pathway to approval in the USA

nature microbiology

Article

https://doi.org/10.1038/s41564-024-01705-x

Personalized bacteriophage therapy outcomes for 100 consecutive cases: a multicentre, multinational, retrospective observational study

Summary

- Here we present the outcomes of a retrospective observational analysis of the first 100 consecutive cases of personalized BT of difficult-to-treat infections facilitated by a Belgian consortium in 35 hospitals, 29 cities and 12 countries during the period from 1 January 2008 to 30 April 2022.

Open label compassion use

- Clinical improvement and eradication of the targeted bacteria were reported for 77.2% and 61.3% of infections, respectively.
- In our dataset of 100 cases, eradication was 70% less probable when no concomitant antibiotics were used (odds ratio = 0.3; 95% confidence interval = 0.127–0.749).
- In vivo selection of bacteriophage resistance and in vitro bacteriophage–antibiotic synergy were documented in 43.8% (7/16 patients) and 90% (9/10) of evaluated patients, respectively.

Superiority trials

Exebacase trial

Phase 2: A 'First-in-Patient' Study with Superiority Design

Staph aureus bacteremia and endocarditis patients have unmet need

- Approximately 200,000 hospitalizations per year in the US
- Clinical cure rates of <50% with current antibiotic therapy
- Mortality rates of at least 20%

First antibacterial trial of its kind

- **Endeavoring to improve clinical response rates** over antibiotic treatment alone
- International, multi-center, randomized, double-blind, placebo-controlled trial for the treatment of *Staph aureus* bacteremia including endocarditis
- Comparison of response rates with exebacase used on top of antibiotics to antibiotics alone

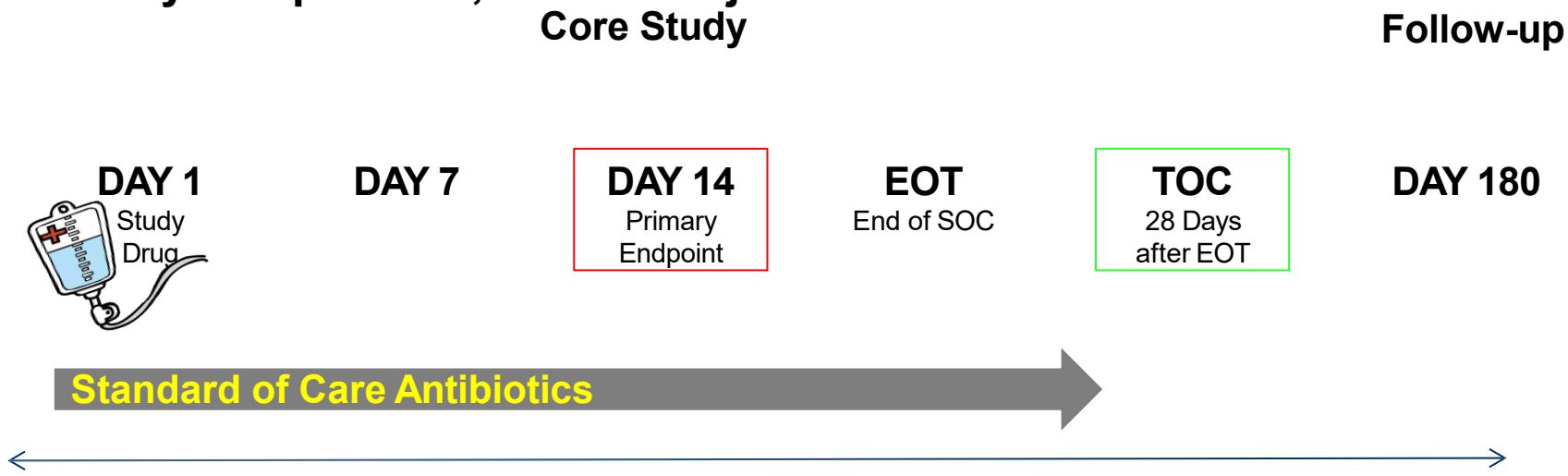
Primary study objectives

- **Safety and tolerability of exebacase used in addition to antibiotics vs antibiotics alone**
- **Clinical outcome at Day 14 after study drug administration**

Source: AMR 2015 Data; 2012 GlobalData Market Research Report; Editor BWJ Mahy; Vol 6. Antimicrobial Resistance: Beyond the Breakpoint; Editor J. Todd Weber (US CDC) Klevens JAMA. 2007;298(15):1763-1771; Issues in Infectious Diseases; Fowler VG Jr, Boucher HW, Corey GR, et al. Daptomycin versus standard therapy for bacteremia and endocarditis caused by *Staphylococcus aureus*. N Engl J Med. 2006 Aug 17;355(7):653-65

Study Schema

- **Primary endpoint – Clinical Responder Rate at Day 14**
  - ***"Improvement/resolution of signs/symptoms, no new metastatic foci or complications, and no changes in antibiotic treatment or further medical intervention due to lack of response in patients alive at time of evaluation"***
  - **Determined by independent, blinded Adjudication Committee**



Number of days of SOC antibiotic treatment varied widely: mean days, (range)

EXE + SOC: 33.3 days, (2 - 181)

SOC Alone: 30.5 days, (3 - 91)

Demographics/Baseline Characteristics Were Balanced

Majority of patients enrolled in the US (79%)

- Latin America, EU, Russia and Israel also enrolled patients
- A total of 121 patients randomized into the study

Primary analysis group – microbiological intent-to-treat (mITT) population

- 116 patients with confirmed *Staph aureus* bacteremia/endocarditis who received study drug
- Average patient was age 56, caucasian and male (67.8% of the total population)
- Approximately one-third of patients had methicillin-resistant staph aureus (MRSA) and two-thirds of patients had methicillin-sensitive staph aureus (MSSA)
- Antibiotic treatment with vancomycin or daptomycin for MRSA and semi-synthetic penicillins or first generation cephalosporins for methicillin-sensitive *Staph aureus* was similar in treatment arms

Risk Factors and Infecting Pathogen (mITT)

Exebacase Improved Responder Rates Overall and in Key Subgroups in Patients with *Staph aureus* Bacteremia

Clinical response at Day 14	exebacase*	antibiotics alone	p-value
Overall mITT population	70.4%	60.0%	0.314
Bacteremia + right-sided endocarditis	80.0%	59.5%	0.028
Bacteremia only	81.8%	61.5%	0.035
MRSA infection	74.1%	31.3%	0.010
MSSA infection	68.2%	73.3%	0.796

*used in addition to antibiotics

Comparison of Phase II and phase III design

- Phase II Randomized, double-blind, placebo-controlled,
- superiority design Proof of Concept study
  - *Compares exebacase (EXE) + standard of care antibiotics (SOC) vs SOC*

- Study population
  - *Adults with documented S. aureus bacteremia including endocarditis*

- Study objectives
  - *Describe safety/tolerability*
  - *Estimate clinical outcome at Day 14 after study drug administration*
  - *Describe the pharmacokinetic parameters of EXE*

- Primary endpoint – Clinical Responder Rate at Day 14
  - *"Improvement/resolution of signs/symptoms, no new metastatic foci or complications, and no changes in antibiotic treatment or further medical intervention due to lack of response in patients alive at time of evaluation"*

  - Determined by independent, blinded Adjudication Committee

- Phase III Randomized, double-blind, placebo-controlled, superiority design
  - *Compares exebacase (EXE) + standard of care antibiotics (SOC) vs SOC*

- Study population
  - *350 Adults with documented S. aureus bacteremia including endocarditis (2:1) randomization*

- Study objectives
  - *Clinical outcome at Day 14 after study drug administration*

- Primary endpoint – Clinical Responder Rate at Day 14
  - *"Improvement/resolution of signs/symptoms, no new metastatic foci or complications, and no changes in antibiotic treatment or further medical intervention due to lack of response in patients alive at time of evaluation" in MRSA patients*

  Secondary endpoint : clinical response at 14 in all staph aureus patients, 30 day all cause mortality in MRSA patients

  Futility at 60% enrollment of population

  - Determined by independent, blinded Adjudication Committee

Phase III results

- 259 enrolled MRSA n=97
- Response rate : 32/64 50% Active agent vs 20/33 60% SOC

Table 3. Clinical Outcome at Days 14, 30, and 60 as Assessed by the Adjudication Committee (mITT Analysis Set)

	Overall Population		MRSA Population		MSSA Population	
	Exebacase + Antibiotics (N = 165) n (%)	Antibiotics Alone (N = 85) n (%)	Exebacase + Antibiotics (N = 64) n (%)	Antibiotics Alone (N = 33) n (%)	Exebacase + Antibiotics (N = 101) n (%)	Antibiotics Alone (N = 52) n (%)
Clinical outcome at day 14						
Response	98 (59.4)	61 (71.8)	32 (50.0)	20 (60.6)	66 (65.3)	41 (78.8)
Difference (95% CI)[a]	−12.4 (−25.4, .7)		−10.6 (−33.6, 12.4)			
P[b]	.071		.392			
Failure/indeterminate	67 (40.6)	24 (28.2)	32 (50.0)	13 (39.4)	35 (34.7)	11 (21.2)
Failure	57 (34.5)	23 (27.1)	30 (46.9)	13 (39.4)	27 (26.7)	10 (19.2)
Indeterminate	10 (6.1)	1 (1.2)	2 (3.1)	0 (0.0)	8 (7.9)	1 (1.9)
Reasons for failure at day 14[c]						
Persistence, worsening, or recurrence of signs/symptoms[d]	33 (20.0)	18 (21.2)	13 (20.3)	11 (33.3)	20 (19.8)	7 (13.5)
New signs/symptoms	5 (3.0)	5 (5.9)	2 (3.1)	3 (9.1)	3 (3.0)	2 (3.8)
New metastatic foci	8 (4.8)	5 (5.9)	4 (6.3)	4 (12.1)	4 (4.0)	1 (1.9)
New septic emboli	3 (1.8)	2 (2.4)	1 (1.6)	1 (3.0)	2 (2.0)	1 (1.9)
Antibiotics changed because of nonresponse	16 (9.7)	10 (11.8)	13 (20.3)	8 (24.2)	3 (3.0)	2 (3.8)
Failure to clear blood cultures by day 14	4 (2.4)	3 (3.5)	4 (6.3)	3 (9.1)	0 (0.0)	0 (0.0)
Death from any cause	11 (6.7)	2 (2.4)	9 (14.1)	0 (0.0)	2 (2.0)	2 (3.8)
Reasons for indeterminate at day 14						
Lost to follow-up	10 (6.1)	1 (1.2)	2 (3.1)	0 (0.0)	8 (7.9)	1 (1.9)
Clinical outcome at day 30						
Response	99 (60.0)	64 (75.3)	34 (53.1)	22 (66.7)	65 (64.4)	42 (80.8)
Failure/indeterminate	66 (40.0)	21 (24.7)	30 (46.9)	11 (33.3)	36 (35.6)	10 (19.2)
Failure	56 (33.9)	20 (23.5)	30 (46.9)	11 (33.3)	26 (25.7)	9 (17.3)
Indeterminate	10 (6.1)	1 (1.2)	0 (0.0)	0 (0.0)	10 (9.9)	1 (1.9)
Clinical outcome at day 60						
Response	93 (56.4)	58 (68.2)	33 (51.6)	20 (60.6)	60 (59.4)	38 (73.1)
Failure/indeterminate	72 (43.6)	27 (31.8)	31 (48.4)	13 (39.4)	41 (40.6)	14 (26.9)
Failure	57 (34.5)	23 (27.1)	30 (46.9)	11 (33.3)	27 (26.7)	12 (23.1)
Indeterminate	15 (9.1)	4 (4.7)	1 (1.6)	2 (6.1)	14 (13.9)	2 (3.8)

N = Number of patients in the microbiological intent-to-treat (mITT) analysis set as the denominator.

Abbreviations: MRSA/MSSA, methicillin-resistant/methicillin-sensitive *Staphylococcus aureus*.

[a]Continuity corrected Wald confidence interval (CI).

[b]Fisher exact test was used.

[c]Patients could have met more than 1 reason for failure.

[d]Symptoms of infection that were present at screening and only improved by 1 grade (ie, from severe to moderate or from moderate to mild) were considered persistent.

Table 4. Clinical Response at Day 14 as Assessed by the Adjudication Committee in the MRSA Population by Subgroups (mITT Analysis Set)

Subgroup/Clinical Response	MRSA Population: Exebacase + Antibiotics (N = 64) n/N1 (%)	MRSA Population: Antibiotics Alone (N = 33) n/N1 (%)
Final diagnosis by Adjudication Committee[a]		
Complicated bloodstream infection (cBSI)	27/48 (56.3)	16/24 (66.7)
Uncomplicated bloodstream infection (uBSI)	3/3 (100.0)	4/4 (100.0)
Right-sided infective endocarditis (R-IE)	2/10 (20.0)	0/4 (0.0)
Left-sided infective endocarditis (L-IE)[b]	0/3 (0.0)	0/1 (0.0)
APACHE II score[c]		
<15	21/36 (58.3)	17/25 (68.0)
≥15	10/26 (38.5)	3/8 (37.5)
>25	0/4 (0.0)	0

N = Number of patients in the microbiological intent-to-treat (mITT) analysis set as the denominator.

Abbreviations: APACHE II, acute physiology and chronic health evaluation II; MRSA, methicillin-resistant *Staphylococcus aureus*.

[a]The diagnoses of cBSI, uBSI, R-IE, and L-IE were mutually exclusive for the analysis.

[b]One patient in the exebacase + antibiotics group had both R-IE and L-IE and is included under L-IE.

[c]Two patients in the exebacase + antibiotics group had missing APACHE II score at baseline.

Bias in enrollment

- Of 90 patients with intermediate or high-grade sarcoma eligible for a randomized trial of adjuvant doxorubicin (Adriamycin, Adria Laboratories, Columbus, Ohio), 48 were not entered: 24 (27%) by physician's choice and 24 refused randomization.
- Sixty-five percent of lower stage patients were randomized compared with 37% of those with higher stage (P = .02). Patients with extremity lesions were more frequently offered participation in the study (P = .07).
- Patients with lower stage lesions accepted randomization more readily than those with higher stage lesions (P = .01). As predicted by the higher stage and percentage of central lesions, the disease-free survival of nonrandomized patients was inferior to that of randomized patients (P = .15).

Bias in enrollment

- Patients at high risk appeared to avoid randomization and adjuvant doxorubicin in this trial, resulting in an inferior disease-free survival for the nonrandomized control group.
- Important questions generally require randomized trials that reliably determine relative treatment differences.
- If, however, the patients in a clinical trial are not representative of the entire patient population because of patient and physician selection biases, the generalizability of the results to the entire patient population may be compromised.
- For example, the prognosis of the general population cannot necessarily be inferred from the selected group in the study. In this study, the randomized and nonrandomized series yielded differing conclusions regarding treatment efficacy, even when an adjustment was made for known prognostic facts.

Noninferiority trials

The majority of new antibiotic trials in the USA

Adds another antibiotic to the shelf but doesn't prove its better than current Tx

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Ceftobiprole for Treatment of Complicated *Staphylococcus aureus* Bacteremia

T.L. Holland, S.E. Cosgrove, S.B. Doernberg, T.C. Jenkins, N.A. Turner, H.W. Boucher, O. Pavlov, I. Titov, S. Kosulnykov, B. Atanasov, I. Poromanski, M. Makhviladze, A. Anderzhanova, M.E. Stryjewski, M. Assadi Gehr, M. Engelhardt, K. Hamed, D. Ionescu, M. Jones, M. Saulay, J. Smart, H. Seifert, and V.G. Fowler, Jr., for the ERADICATE Study Group*

Table 2. Primary and Secondary Efficacy Outcomes (Modified Intention-to-Treat Population).*

Treatment Success or Failure and Secondary Outcomes	Ceftobiprole (N=189)	Daptomycin (N=198)	Adjusted Treatment Difference (95% CI)†
	no. of patients/total no. (%)		*percentage points*
Primary outcome			
Overall treatment success at the post-treatment evaluation visit	132 (69.8)	136 (68.7)	2.0 (–7.1 to 11.1)
Reason for treatment failure‡			
Any treatment failure	57 (30.2)	62 (31.3)	
Discontinuation owing to lack of efficacy	9 (4.8)	10 (5.1)	
New or worsening *S. aureus* complications§	11 (5.8)	11 (5.6)	
Relapse of *S. aureus* bacteremia	2 (1.1)	4 (2.0)	
Use of nontrial antibiotics for *S. aureus* bacteremia	20 (10.6)	19 (9.6)	
Use of nontrial antibiotics for other indication	11 (5.8)	13 (6.6)	
Death	17 (9.0)	18 (9.1)	
Missing data to determine outcome¶	16 (8.5)	17 (8.6)	
Use of antibiotic treatment beyond trial-specified duration	9 (4.8)	15 (7.6)	
Secondary outcomes‖			
Death through the post-treatment evaluation visit	17 (9.0)	18 (9.1)	–0.5 (–6.2 to 5.2)
Death due to *S. aureus* bacteremia	7 (3.7)	6 (3.0)	
Microbiologic eradication at the post-treatment evaluation visit	155 (82.0)	153 (77.3)	5.1 (–2.9 to 13.0)
Overall treatment success at the post-treatment evaluation visit in the per-protocol population**	127/163 (77.9)	130/167 (77.8)	0.6 (–8.3 to 9.5)
Development of new metastatic foci or other complications of *S. aureus* bacteremia after day 7	11 (5.8)	11 (5.6)	0.1 (–4.6 to 4.8)
Median time to *S. aureus* bloodstream clearance	4 (3 to 5)	4 (3 to 5)	

Subgroup	Ceftobiprole	Daptomycin	Percentage-Point Difference (95% CI)
	no. of patients/total no. (%)		
All patients	132/189 (69.8)	136/198 (68.7)	2.0 (–7.1 to 11.1)
Age at written informed consent			
18 to <65 yr	98/131 (74.8)	101/135 (74.8)	0.6 (–9.8 to 10.9)
≥65 yr	34/58 (59)	35/63 (56)	6.9 (–10.5 to 24.3)
Sex			
Male	93/128 (72.7)	92/140 (65.7)	8.0 (–2.8 to 18.8)
Female	39/61 (64)	44/58 (76)	–11.3 (–27.7 to 5.1)
Baseline category of complicated *S. aureus* bacteremia			
Soft-tissue infection	81/116 (69.8)	80/121 (66.1)	4.5 (–7.3 to 16.3)
S. aureus bacteremia excluding soft-tissue infection	51/73 (70)	56/77 (73)	–1.7 (–15.9 to 12.6)
Osteoarticular infection	23/32 (72)	24/35 (69)	2.9 (–19.7 to 25.6)
Abdominal abscess	18/26 (69)	22/29 (76)	–9.7 (–33.3 to 13.9)
Hemodialysis	13/24 (54)	15/25 (60)	–4.6 (–32.5 to 23.3)
Persistent *S. aureus* bacteremia	8/16 (50)	8/16 (50)	–0.0 (–35.9 to 35.9)
Infective endocarditis on right side of heart	10/15 (67)	7/10 (70)	–6.6 (–40.1 to 27.0)
Baseline *S. aureus* infection			
Methicillin-susceptible	100/141 (70.9)	97/146 (66.4)	4.8 (–5.9 to 15.5)
Methicillin-resistant	31/45 (69)	38/49 (78)	–8.3 (–25.3 to 8.6)
Previous antibiotic use			
Yes	92/139 (66.2)	85/134 (63.4)	2.9 (–8.4 to 14.2)
No	40/50 (80)	51/64 (80)	–0.2 (–15.0 to 14.6)
Trial cohort			
Cohort 1	68/97 (70)	62/96 (65)	7.6 (–5.6 to 20.8)
Cohort 2	64/92 (70)	74/102 (72.5)	–3.4 (–16.1 to 9.3)

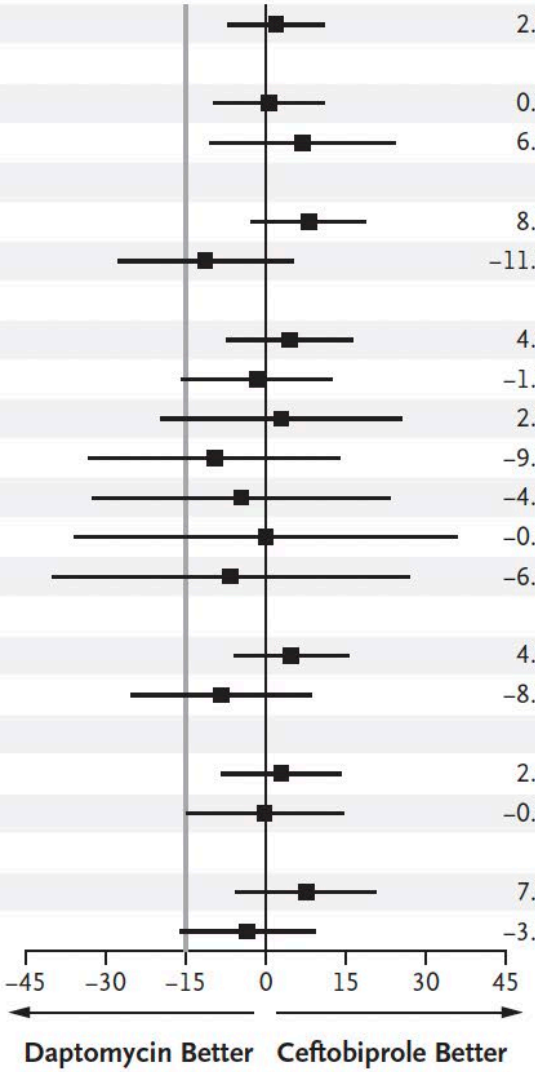


Figure 2. Overall Treatment Success at the Post-Baseline Evaluation Visit, According to Patient Characteristics at Baseline (Modified Intention-to-Treat Analysis Population).

nature medicine

Article

https://doi.org/10.1038/s41591-023-02569-0

Cloxacillin plus fosfomycin versus cloxacillin alone for methicillin-susceptible *Staphylococcus aureus* bacteremia: a randomized trial

Received: 27 April 2023

Accepted: 25 August 2023

A list of authors and their affiliations appears at the end of the paper

Table 2 | Primary and secondary endpoints in the intention-to-treat and per-protocol populations

Intention-to-treat population	Cloxacillin plus fosfomycin (*n*=104)	Cloxacillin alone (*n*=110)	Risk difference % (95% CI)	*P* value*
Primary endpoint				
Treatment success at day 7	83 (79.8%)	82 (74.5%)	5.3 (−5.95–16.48)	0.360
Secondary endpoints				
All-cause mortality at day 7	4 (3.8%)	1 (0.9%)	2.9 (−2.1–7.97)	0.333
All-cause mortality at end of therapy[a]	10 (9.6%)	14 (12.7%)	−3.1 (−11.53–5.31)	0.453
All-cause mortality at TOC[b]	10 (9.6%)	17 (15.5%)	−5.9 (−14.66–2.98)	0.196
Persistent bacteremia at day 3[c]	4/95 (4.2%)	18/102 (17.6%)	−13.4 (−22.88–−3.99)	0.006
Persistent bacteremia at day 7[d]	2/90 (2.2%)	4/97 (4.1%)	−1.9 (−7.97–4.16)	0.748
Microbiological treatment failure at 14 days[e]	0 (%)	0 (%)	–	–
Relapsing bacteremia at TOC[f]	0/93 (0%)	1/102 (1%)	−0.9 (−3.87–1.91)	1
Complicated bacteremia at TOC[g]	21/95 (22.1%)	35/105 (33.3%)	−11.2 (−23.51–1.06)	0.077
Emergence of fosfomycin-resistant strains at TOC	0 (0%)	0 (0%)	–	–
Length of intensive care unit stay, median (IQR), days	8.0 (3.0–17.0)	4.0 (3.25–8.50)	–	0.355
Duration of intravenous antibiotic treatment, median (IQR), days	14.0 (11.0–22.0)	15.5 (11.0–26.0)	–	0.245
Serious adverse events leading to discontinuation of therapy[h]	11 (10.6%)	9 (8.2%)	2.40 (−5.43–10.22)	0.547

Per-protocol population	Cloxacillin plus fosfomycin (*n*=101)	Cloxacillin alone (*n*=106)	Risk difference % (95% CI)	*P* value*
Primary endpoint				
Treatment success at day 7	81 (80.2%)	81 (76.4%)	3.8 (−7.43–15)	0.51
Secondary endpoints				
All-cause mortality at day 7	2 (2%)	0 (0%)	2 (−1.7–5.66)	0.145
All-cause mortality at end of therapy[a]	10 (9.9%)	11 (10.4%)	−0.5 (−8.7–7.75)	0.91
All-cause mortality at TOC[b]	10 (9.9%)	14 (13.2%)	−3.3 (−11.99–5.38)	0.458
Persistent bacteremia at day 3[c]	4/94 (4.3%)	17/99 (17.2%)	−12.9 (−22.43–−3.4)	0.005
Persistent bacteremia at day 7[d]	2/88 (2.3%)	4/95 (4.2%)	−1.9 (−8.13–4.26)	0.684
Microbiological treatment failure at 14 days[e]	0 (%)	0 (%)	–	–
Relapsing bacteremia at TOC[f]	0/91 (0%)	1/99 (1%)	−1 (−3.99–1.97)	1
Complicated bacteremia at TOC[g]	20/93 (21.5%)	34/102 (33.3%)	−11.8 (−24.21–0.56)	0.078
Emergence of fosfomycin-resistant strains at TOC	0 (0%)	0 (0%)	–	–
Length of intensive care unit stay, median (IQR), days	9.0 (4.75–15.8)	4.0 (3.25–8.50)	–	0.168
Duration of intravenous antibiotic treatment, median (IQR), days	14.0 (11.0–22.0)	16.0 (11.0–26.0)	–	0.181
Serious adverse events leading to discontinuation of therapy[h]	10 (9.9%)	6 (5.7%)	4.2 (−4.03–12.51)	0.304

*The *P* values were obtained from a two-sided test for differences in proportions. [a]End of therapy visit 48 h after the last dose of antibiotic treatment. [b]TOC visit 12 weeks after randomization. [c]At least one positive blood culture for MSSA at day 3. [d]At least one positive blood culture for MSSA at day 7. [e]Defined as a positive sterile site culture for MSSA at least 14 days after randomization. [f]At least one positive blood culture for MSSA at least 72 h after a preceding negative culture at TOC. [g]Defined as persistent bacteremia, endocarditis, metastatic emboli or the presence of prosthetic devices at TOC. [h]During the first 7 days after randomization.

BMJ Open

Safe shortening of antibiotic treatment duration for complicated *Staphylococcus aureus* bacteraemia (SAFE trial): protocol for a randomised, controlled, open-label, non-inferiority trial comparing 4 and 6 weeks of antibiotic treatment

Buis DTP, *et al*. *BMJ Open* 2023;**13**:e068295. doi:10.1136/bmjopen-2022-068295

Primary outcome measure

The primary outcome of the SAFE trial is in accordance with the consensus definition on proposed primary endpoints for bloodstream infection trials.[23] The primary outcome is success of therapy at 180 days after randomization, defined as follows:

1. Patient alive.
2. No evidence of microbiologically confirmed disease relapse, defined as symptoms and/or signs of infection, after initial clinical improvement, with *S. aureus* isolated from blood or another normally sterile site (eg, joint fluid) by conventional culture.

Secondary outcome measures

Secondary outcome measures include:

1. All-cause mortality at 180 days after randomisation.
2. Microbiologically confirmed disease relapse at 180 days after randomization.

State of Phage Development and Approval

CRITICAL: Prove Phage Therapy Works

The phage field has focused on compassionate use cases and individualized medicine.

What is urgently needed are definitive pivotal trials that clearly address:

- Role of phage therapy as an alternative or augmentation of antibiotics to prevent or delay resistance
- Evidence that phage is non-inferior to standard-of-care antibiotics
- Demonstrated safety and efficacy complementary to antibiotics

Armata has the capabilities and commitment to advancing phage therapy to market and enabling access of this innovative treatment modality to all patients in need globally

Armata has Industry-Leading Capabilities in Developing and Manufacturing Phage Therapeutics From Bench to Clinic

01

Discovery

- Phage libraries
- Pathogen libraries
- Synthetic biologists with phage engineering expertise
- Computational biology team

02

Preclinical Development

- Well-equipped BSL2 labs
- Highly trained microbiologists
- Experienced translational biologists
- Formulation capabilities

03

PD & Analytical Sciences

- Fully equipped for method development
- Strong team of biophysical scientists (chemists, structural biologists, etc.)
- Internal alignment with manufacturing for efficient method transfer

04

CMC

- State-of-the-art cGMP facilities operating multiple clean rooms
- In-house Quality Systems

05

Clinical Development

- Successful filing of INDs and conduct of FIH studies
- Execution of mid-stage studies
- Expertise in registrational studies and achieving approval (BLAs and INDs)
- Operational expertise inside and outside of the US, support of product launch

Strong Relationships with Partners With Demonstrated Interest in Supporting Development of Phage Therapy

Underscores Credibility of Armata's Clinical Programs

Armata Partnerships

CYSTIC FIBROSIS FOUNDATION

$5M Therapeutics Development Award
- Support Ph1b/2a SWARM-P.a. study
- All milestones achieved

$3M equity investment (4Q21)

$21.6M OTA with DoD through MTEC*
- Funding from DHA and JWMRP
- Support Ph1b/2a diSArm study

Future Funding Options

- Foundation Support: CFF
- Government Support: DoD, BARDA, ARPA-H
- Strategic long-term equity investment
- Pharma partnerships; clinical programs de-risked
- Consider additional licensure agreements that attract not-for-profit support & financing

* Other Transaction Award (OTA) from U.S. Department of Defense (DoD) received through the Medical Technology Enterprise Consortium (MTEC) and managed by the Naval Medical Research Command (NMRC) – Naval Advanced Medical Development (NAMD) with funding from the Defense Health Agency (DHA) and Joint Warfighter Medical Research Program (JWMRP).

BARDA: Biomedical Advanced Research and Development Authority; ARPA-H: Advanced Research Projects Agency for Health

Clinical Pipeline: Multiple Shots on Goal

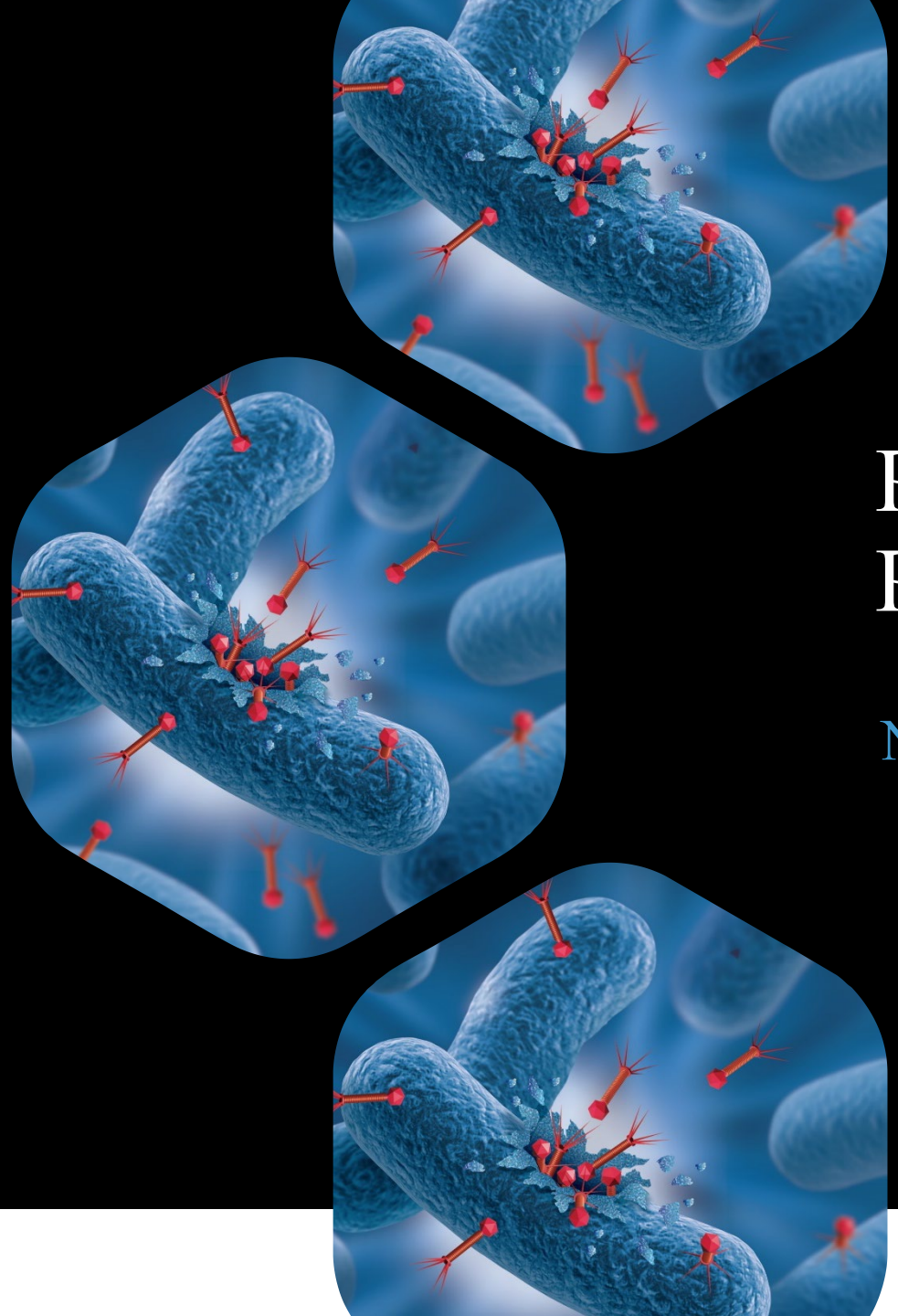
Phage Evaluation via Multi-Centered Randomized-Controlled Clinical Trials

Program	Product	Discovery	Preclinical	IND-Cleared	Phase 2	Partner
Pseudomonas aeruginosa Respiratory Infections	AP-PA02	CF			SWARM-P.a.	CYSTIC FIBROSIS FOUNDATION
		NCFB			Tailwind	Unpartnered
Staphylococcus aureus	AP-SA02	Bacteremia			diSArm	U.S. DoD*
		PJI		inFLEXion		Unpartnered

SWARM-P.a. NCT04596319; diSArm NCT05184764; Tailwind NCT05616221

* Department of Defense (DoD) award received through the Medical Technology Enterprise Consortium (MTEC) and managed by the Naval Medical Research Command (NMRC) – Naval Advanced Medical Development (NAMD) with funding from the Defense Health Agency and Joint Warfighter Medical Research Program.

CF: cystic fibrosis; NCFB: non-CF bronchiectasis; PJI: prosthetic joint infection



Pseudomonas aeruginosa Program (AP-PA02)

Non-CF Bronchiectasis (NCFB)

Tailwind

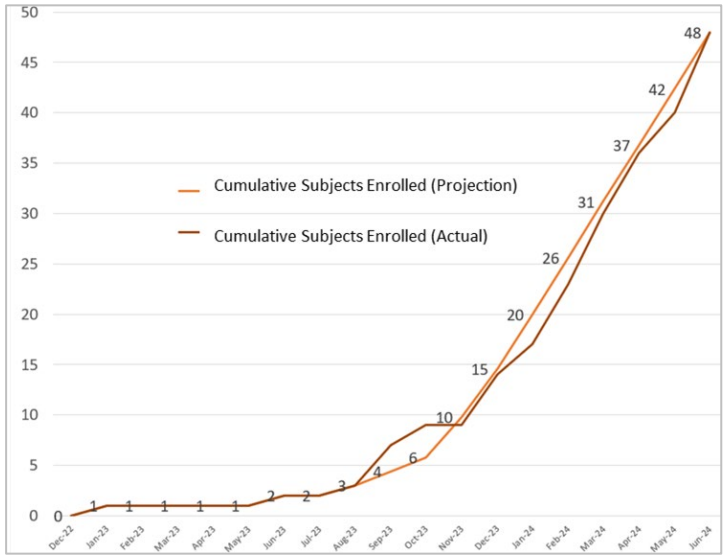
NCFB Phase 2 Trial Top Line Data*

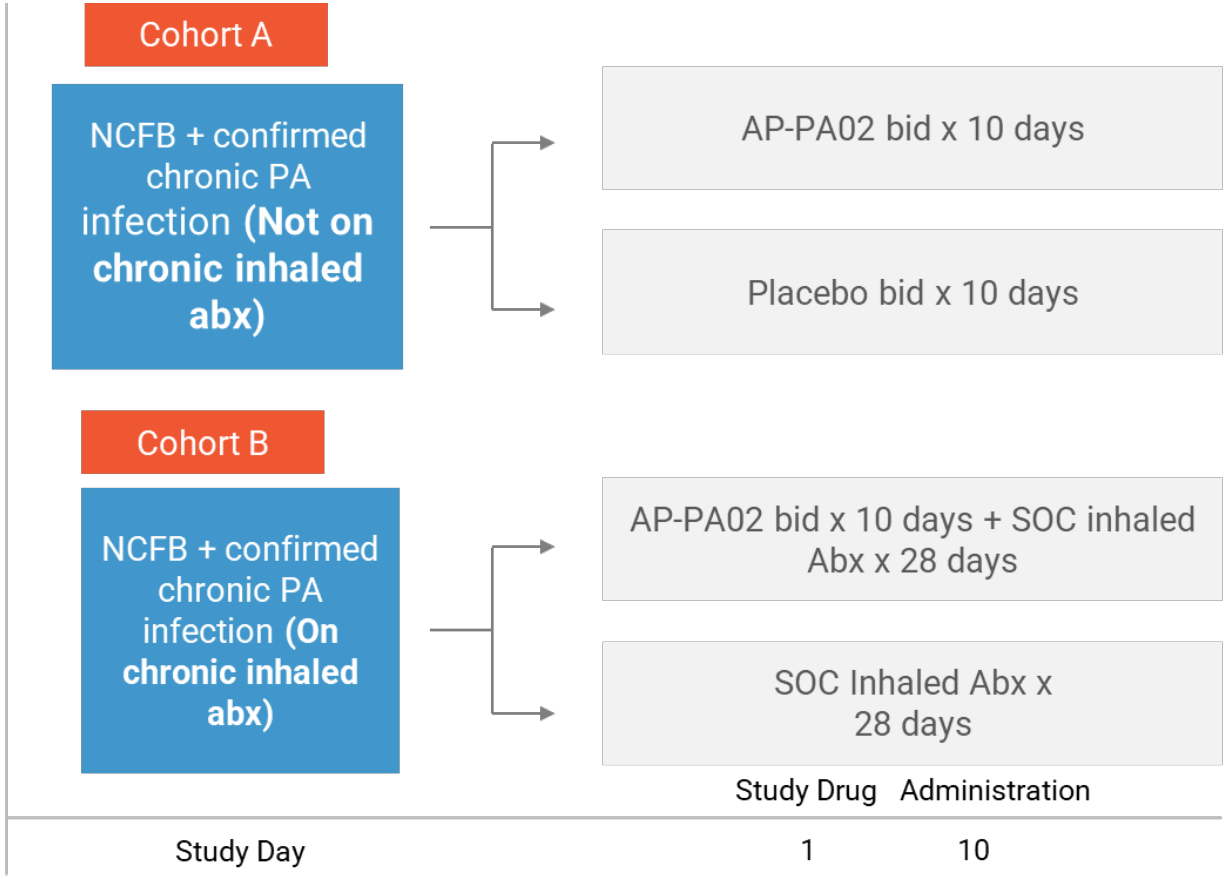
* Data are preliminary and remains subject to further review and quality control; findings are subject to change pending complete data that will be presented in the future

NCFB Phase 2 Tailwind Study: Completed 3Q24

Evaluated AP-PA02 as Monotherapy and in Combination with Inhaled Antibiotics

- AP-PA02 nebulized q12h x 10 days
- Subjects dosed at home
- Started with highest dose from CF study (increased dose 2X after lead in)
- Evaluated AP-PA02 exposures in correlation with bacterial load reduction and durability
- 48 subjects dosed across 23 US sites

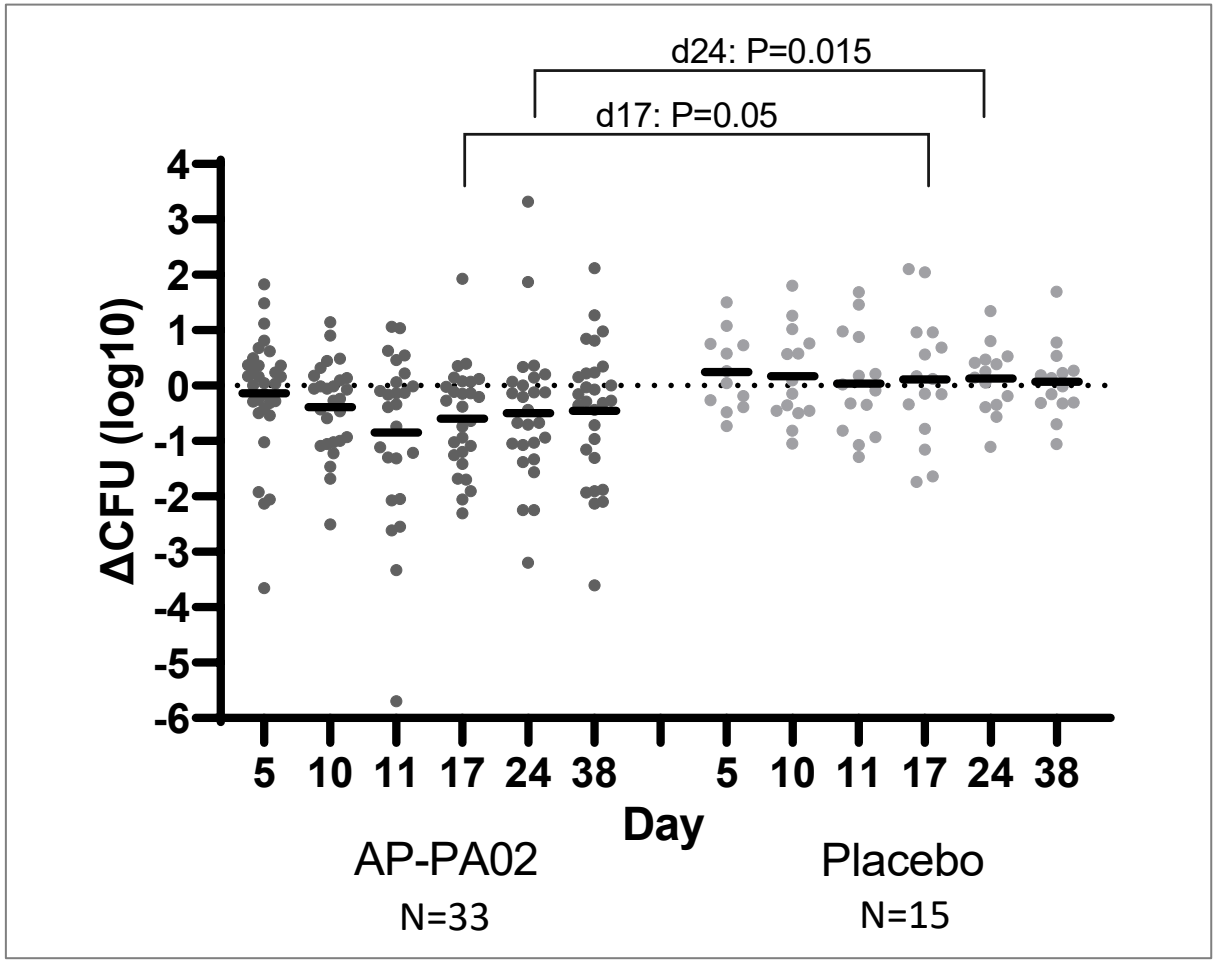




POST HOC P. aeruginosa Efficacy Data

ITT Population Analysis - All 48 Subjects

Change in Pa density from Baseline: Treated vs. Placebo*



Pa density (baseline vs. each day within each group)**

		Treated (p-value)	Placebo (p-value)
Baseline vs	Day 5	0.8	0.38
	Day 10	0.03	0.76
	Day 11	0.01	>0.99
	Day 17	0.003	0.5
	Day 24	0.02	0.43
	Day 38	0.15	>0.99

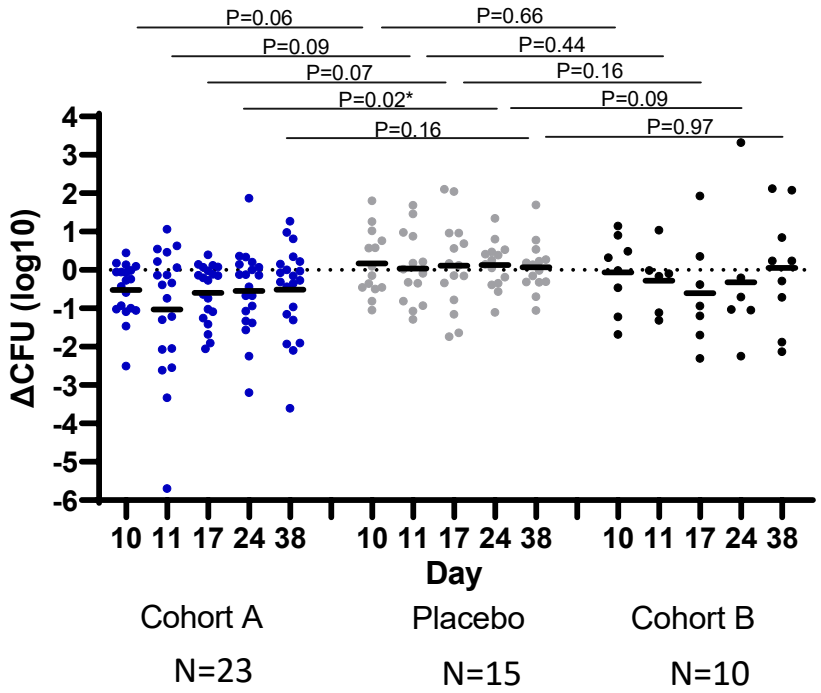
Significant difference in the treated group between baseline and Days 10, 11, 17, and 24 but not at any timepoint in placebo

* Non-parametric, unpaired t test
** Paired t-Test

POST HOC ITT Independent Cohort Analysis

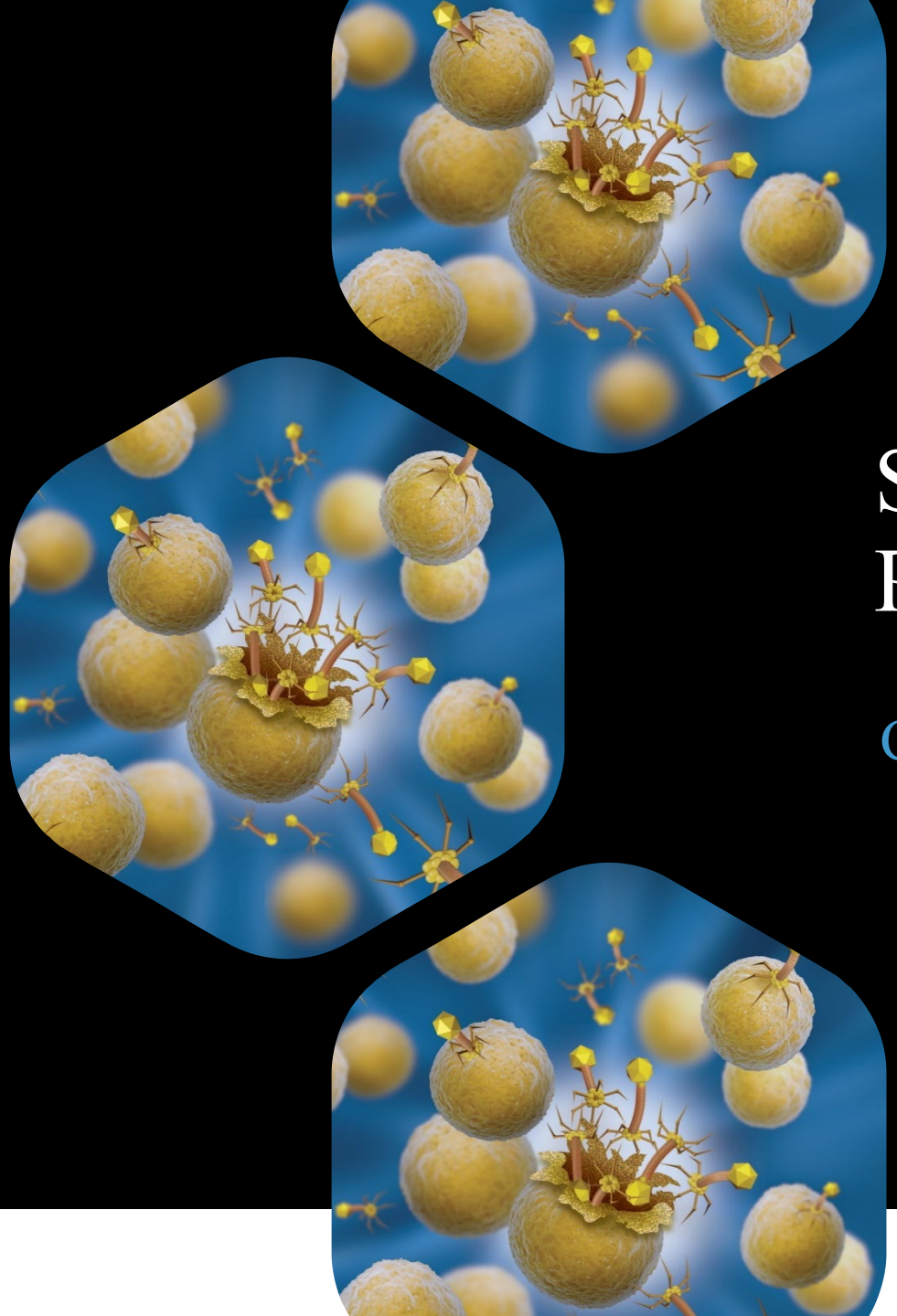
AP-PA02 Alone Is As Effective As AP-PA02 Plus Antibiotics

AP-PA02 Treated (Cohort A or B; All Treated vs. All Placebo)*



* Non-parametric, unpaired t test

- Small sample size of Cohort B limits meaningful comparison of AP-PA02 alone vs. combination of AP-PA02 with antibiotics



Staphylococcus aureus Program (AP-SA02)

Complicated Bacteremia

AP-SA02

Bacteremia Phase 1b/2a "diSArm" Study Design

Primary Study Endpoints in Intent-to-Treat (ITT) Population

Study Conduct

Phase 1b (n=8; 3:1): dose escalating

Phase 2a (n=42; 2:1): fully enrolled in <12 months

28 sites

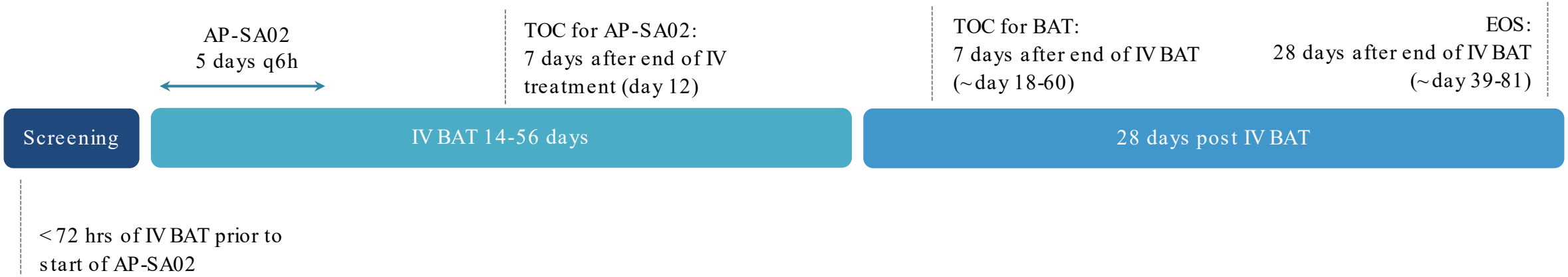
IV dosing every 6 hours for 5 days IV push + Antibiotics

ITT: All subjects that received BAT and at least one dose of AP-SA02 or Placebo (BAT only)

Phase 1b: Safety and tolerability of multiple intravenous (IV) doses of AP-SA02

Phase 2a: Clinical outcome (responder rate[1]) measured at:

- Test of Cure (TOC) for AP-SA02: one week following the end of IV treatment with AP-SA02 (day 12)
- TOC for BAT: one week following the end of IV BAT
- End of Study (EOS): four weeks following the end of IV BAT



1 – responder defined as all these signs and symptoms resolved from screening: temperature, heart rate, respiratory rate, white blood cell count, systolic blood pressure, pain associated with infection site

AP-SA02

Favorable Safety Profile is Major Accomplishment in Bacteriophage Field

Other Companies Have Faced Significant Safety and Tolerability Hurdles

No safety concerns related to intervention

- Zero SAEs related to study drug
- 2 subjects had an AE that was possibly related to study drug:
  - One with transient liver enzyme elevation - Alanine aminotransferase (ALT) and aspartate aminotransferase (AAT)
  - One hypersensitivity noted but also concurrent with vancomycin – resolved with discontinuation of vancomycin

Other companies' phage interventions have had challenges with immunogenic responses

- High reactogenicity to IV products despite lowering dose and lengthening infusion period limits their treatment to one to two total IV doses
- Low yield from fermentation complicating purification

Armata's clean safety profile provides meaningful clinical advantages for this and future programs

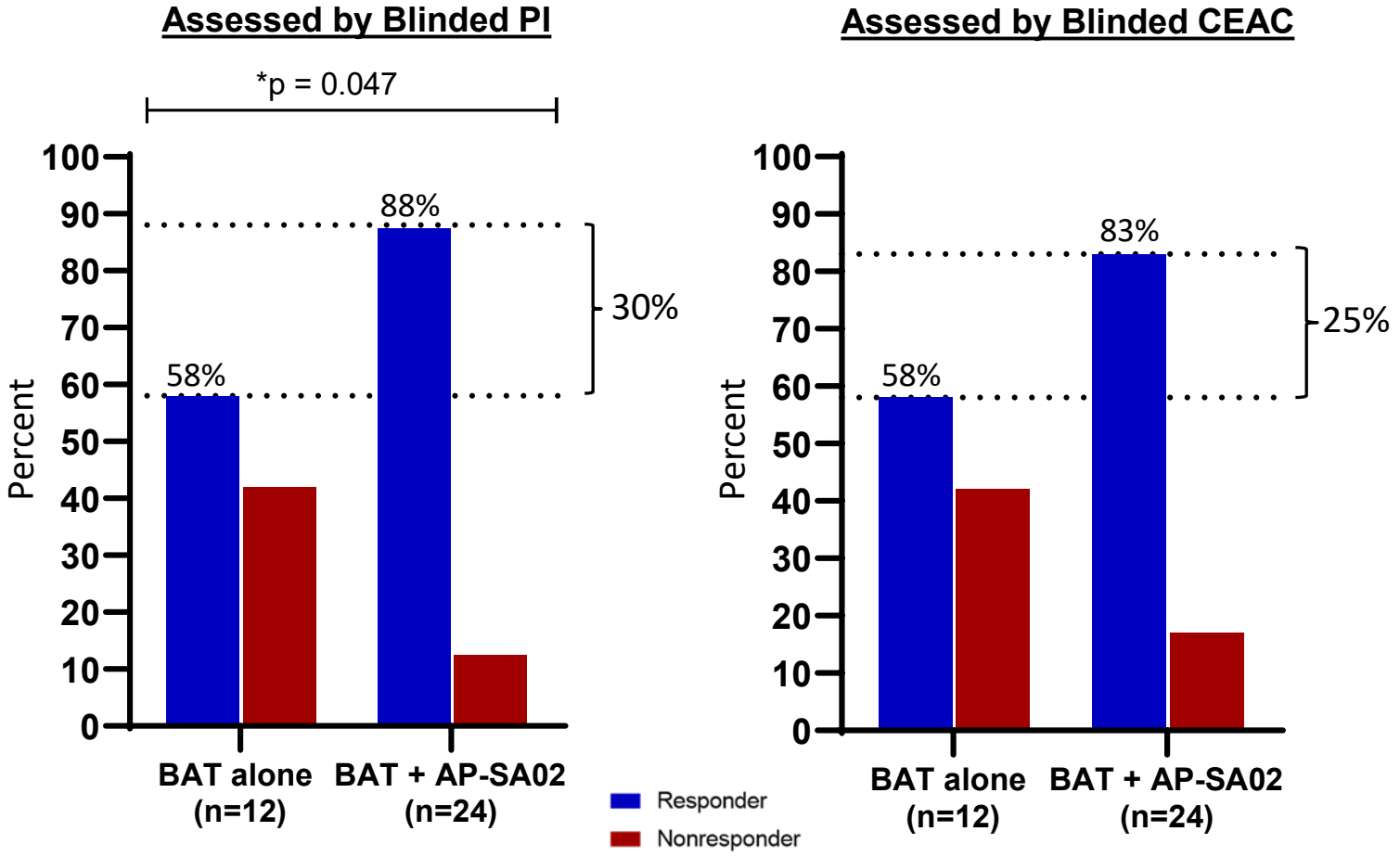
Armata has successfully, safely administered repeat safe systemic IV dosing at high titer

This high titer IV dosing allows for maximum efficacy and shorter treatment duration

This IV method of administration has the highest bar for safety and tolerability in phage; Armata can confidently expand into other routes of administration

AP-SA02 Improved Clinical Outcome in ITT Population at TOC for AP-SA02 (Day 12)

Significantly Improved Responder Rate (88%) Assessed by Blinded PI



BAT = Best Available Therapy
^ TOC (Test of Cure) for AP-SA02: one week following the end of IV treatment with AP-SA02 (Day 12)

* Chi-squared Test

Clinical Outcome At TOC for AP-SA02 (Day 12)^

- Improved responder rate in AP-SA02 treated subjects compared to BAT alone at TOC for AP-SA02 (day 12)^
  - Blinded PI:

    30 percentage point increase (58-88%) in responder rate in AP-SA02 treated subjects ($p = 0.047$)

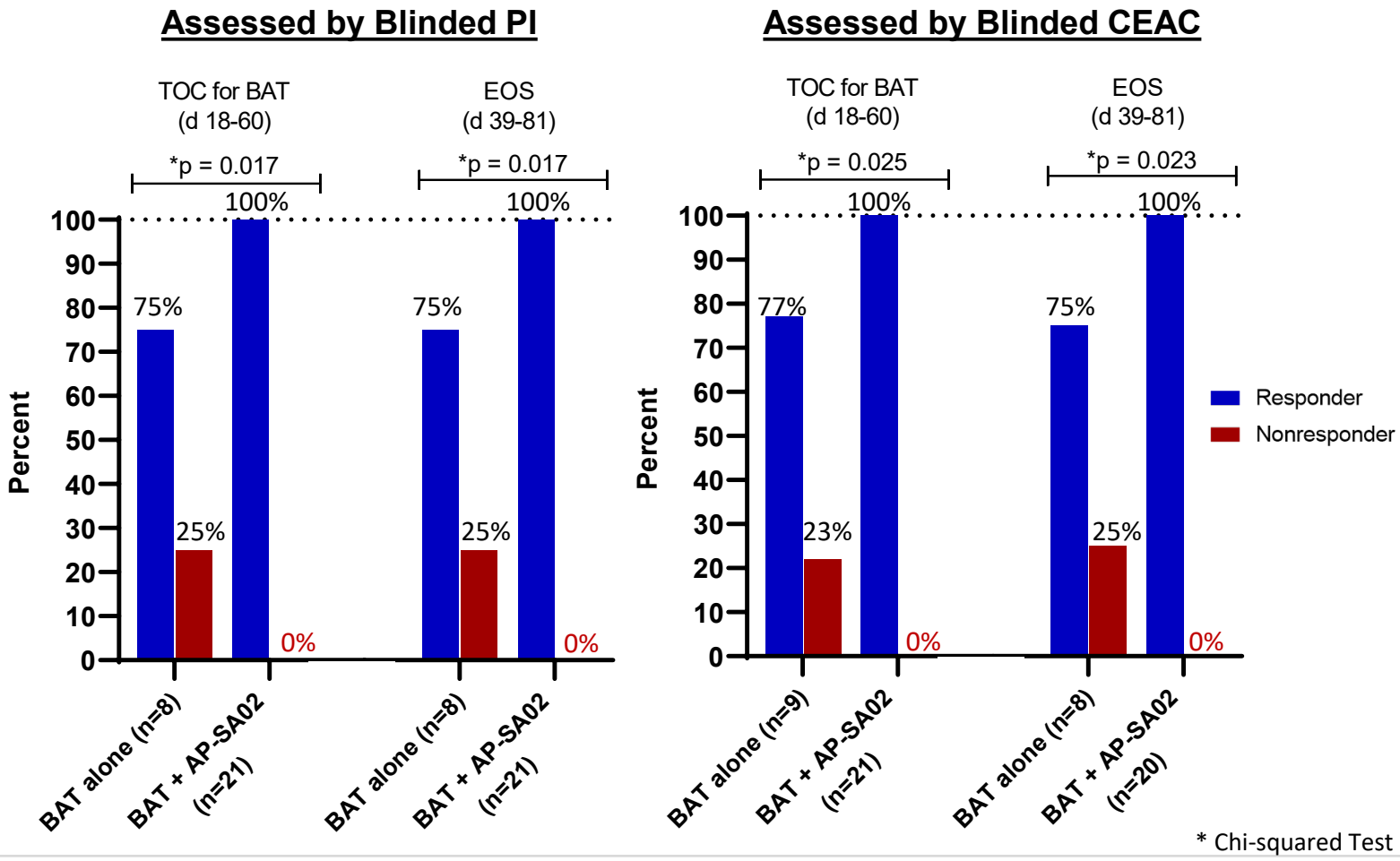
  - Blinded Adjudication Committee:

    25 percentage point increase (58-83%) in responder rate in AP-SA02 treated subjects[1]

1. One subject (amputee, obese) had back pain through Day 12 with all objective parameters consistent with response; the CEAC (Clinical Efficacy Adjudication Committee) deemed persistent back pain a continued symptom.

AP-SA02 Improved Clinical Outcome in ITT Population At All Timepoints

100% Clinical Response in AP-SA02 Treated Subjects at TOC BAT and at EOS



* Chi-squared Test

CEAC = Clinical Efficacy Adjudication Committee

Clinical Outcome at TOC BAT and at EOS

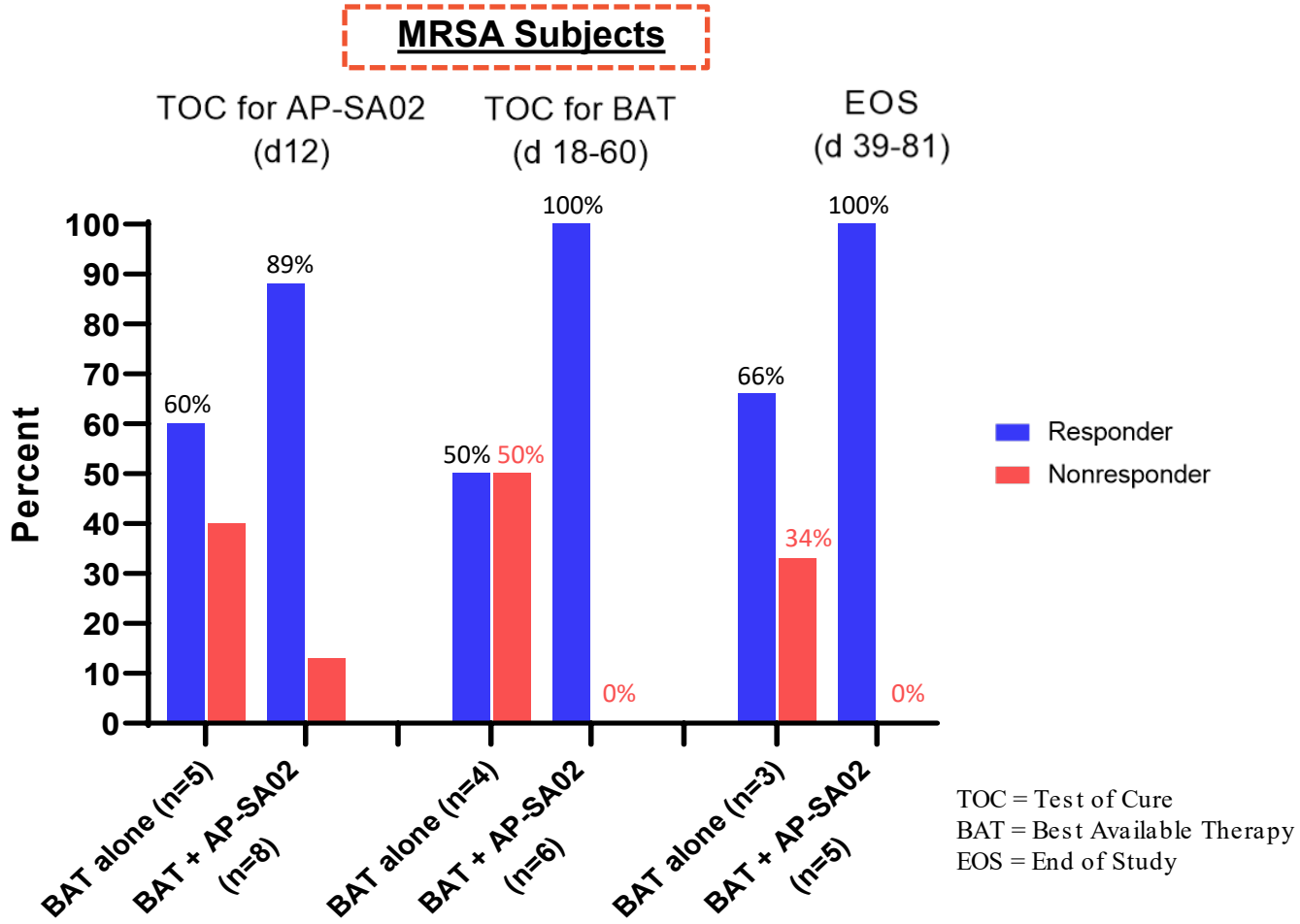
- Statistically significant increase in responder rate for AP-SA02 treated subjects
- At TOC for BAT and at EOS:
  - 100% of AP-SA02 treated subjects clinically responded
    - PI and Adjudication Committee agree
  - ~25% of placebo (BAT alone) subjects non-responsive due to relapse or treatment failure
    - Consistent with rate reported in other Phase 3 trials

TOC = Test of Cure
BAT = Best Available Therapy
EOS = End of Study

Data are preliminary and remains subject to further review and quality control

All Subjects With MRSA That Received AP-SA02 Cleared Infection, No Evidence of Relapse

AP-SA02 Effective Against Both MRSA and MSSA



TOC = Test of Cure
BAT = Best Available Therapy
EOS = End of Study

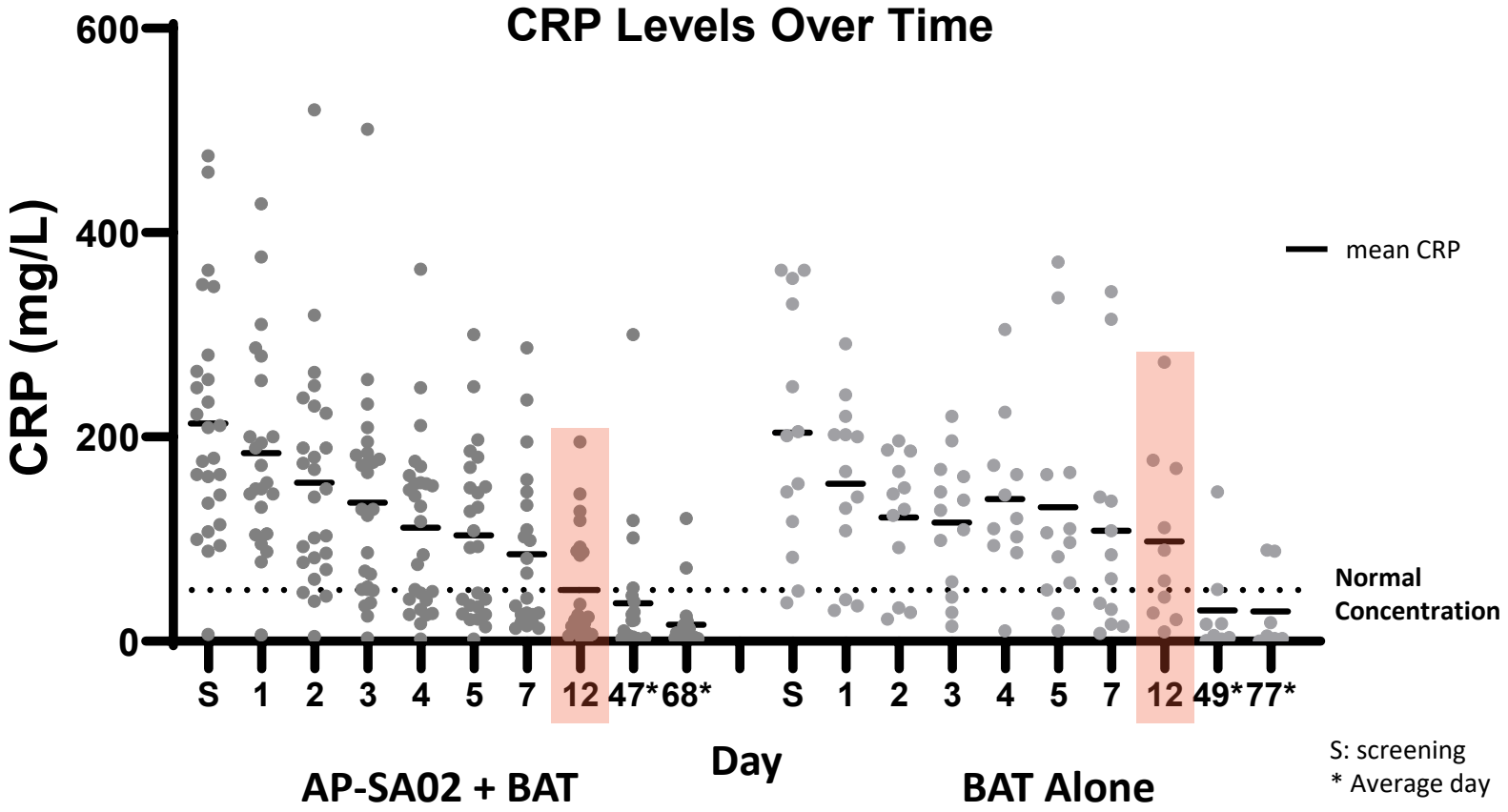
Clinical Outcome Assessed by Blinded PI MRSA Infected Subjects

- 100% of AP-SA02 treated subjects clinically responded regardless of MSSA or MRSA infection
- AP-SA02 treated subjects:
  - Cleared infection by TOC for BAT
  - No evidence of relapse or treatment failure

Data are preliminary and remains subject to further review and quality control

Faster Decline of Key Biomarkers in AP-SA02 Treated Subjects: Supports Clinical Outcome

Mean CRP Levels Reached Normal by Day 12^; Remains Elevated in Subjects On BAT Alone



C-reactive Protein (CRP)

- General indicator of Inflammation
- Predictor of mortality and complications in bacteremia[1]
- Similar declines seen in white blood cell and absolute neutrophil counts

^ Test of Cure (TOC) for AP-SA02: one week following the end of IV treatment with AP-SA02 (day 12)

1. PLoS ONE 11(5): e0155644; Clin Microbiol Infect 2011; 17: 627–632

Data are preliminary and remains subject to further review and quality control

AP-SA02 Administered IV Every 6 Hours for 5 Days is Well Tolerated

Safety Population (N=50)

	Phase 1b Uncomplicated SAB		Phase 2a Complicated SAB	
	AP-SA02 (N=6)	Placebo (N=2)	AP-SA02 (N=29)	Placebo (N=13)
	n (%)	n (%)	n (%)	n (%)
Any adverse events (AEs)	6 (100.0)	2 (100.0)	19 (65.5)	12 (92.3)
Any treatment-emergent AEs (TEAEs)[1]	6 (100.0)	2 (100.0)	17 (58.6)	10 (76.9)
Any study drug related TEAEs[2]	1 (16.7)	0 (0.0)	1 (3.4)	0 (0.0)
Any Best Available Therapy related TEAEs	3 (50.0)	0 (0.0)	4 (13.8)	3 (23.1)
Any serious AEs (SAEs)	5 (83.3)	1 (50.0)	4 (13.8)	3 (23.1)
NCI CTCAE Grade 3/4/5 Aes	5 (83.3)	1 (50.0)	9 (31.0)	9 (69.2)
NCI CTCAE Grade 3/4/5 TEAEs	5 (83.3)	1 (50.0)	8 (27.6)	7 (53.8)
Any TEAEs leading to interruption of study drug	1 (16.7)	0 (0.0)	0 (0.0)	0 (0.0)
Any TEAEs leading to withdrawal of study drug	0 (0.0)	0 (0.0)	0 (0.0)	1 (7.7)
Any TEAEs leading to discontinuation of study	0 (0.0)	0 (0.0)	1 (3.4)	0 (0.0)
Any AEs leading to death[3]	0 (0.0)	0 (0.0)	1 (3.4)[3]	0 (0.0)

1. TEAEs are defined as adverse events (AEs) occurring after the first dose of AP-SA02 through TOC (Day 12) or through EOS for SAEs.
2. Refer to next slide.
3. Subject was blood culture negative for S. aureus by Day 3/5 of AP-SA02 treatment (8 days before death); fatal (unrelated) event of multiple organ failure determined by study PI to be unrelated to both study drug and vancomycin.

NCI CTCAE = National Cancer Institute Common Terminology Criteria for Adverse Events.

No Serious AEs Related to AP-SA02

Only 2 Subjects With AEs Possibly Related to AP-SA02

	Phase 1b Uncomplicated SAB		Phase 2a Complicated SAB	
System Organ Class Preferred Term*	AP-SA02 (N=6) n (%)	Placebo (N=2) n (%)	AP-SA02 (N=29) n (%)	Placebo (N=13) n (%)
Any study drug related treatment-emergent adverse events	1 (16.7)	0 (0.0)	1 (3.4)	0 (0.0)
Immune system disorders	1 (16.7)	0 (0.0)	0 (0.0)	0 (0.0)
Hypersensitivity[1]	1 (16.7)[1]	0 (0.0)	0 (0.0)	0 (0.0)
Investigations	0 (0.0)	0 (0.0)	1 (3.4)	0 (0.0)
Alanine aminotransferase (ALT) increased[2]	0 (0.0)	0 (0.0)	1 (3.4)[2]	0 (0.0)
Aspartate aminotransferase (AST) increased[2]	0 (0.0)	0 (0.0)	1 (3.4)[2]	0 (0.0)

*AE reported terms were coded using the Medical Dictionary for Regulatory Activities (MedDRA) Version 24.1
1. Concurrent with Vancomycin and resolved with discontinuation of Vancomycin.
2. Transient transaminitis (mean 386 U/L ALT, 316 U/L AST) began on Day 4, persisted through Day 7, and was returned to normal in next blood draw on Day 12.

AP-SA02

Groundbreaking Clinical Results Address High Unmet Need

Potential for Significant Commercial Opportunity as Early-Line Standard of Care

Paradigm Changing Clinical Data

Phase 2a study compared AP-SA02 on top of standard of care vs. antibiotics alone in patients with complicated bacteremia

Intent to Treat population had 100% successful clinical responses with AP-SA02, compared to 75% on best available treatment

2 SAEs judged possibly related to study drug: a significant achievement in bacteriophage clinical development

Important Indication with High Mortality

More than 50,000 patients each year are treated for complicated bacteremia in the U.S.

Despite best clinical care, mortality rates are over 25% and standard of care antibiotics have only shown 60-80% efficacy in pivotal clinical trials

High healthcare resource utilization with an estimated ~$31K cost per hospitalization

Compelling Market for New Standard of Care

In addition to superior efficacy, AP-SA02 would likely have additional benefits including low risk of resistance development, faster action allowing for shorter hospital stays, and less disruption to the microbiome which can lead to opportunistic infections

Market research indicates a high willingness to use a product with AP-SA02's profile in a majority of 1L patients and nearly all patients by 2L

3rd party research indicates a peak U.S. revenue opportunity >$400M / year with conservative pricing assumptions

Recent Achievements Demonstrate Operational Excellence

Focus on Commercialization Aspects and Phase 3 Trial Designs

Perfected engineered host (removal of toxins and prophages) – well positioned for pivotal trial

Optimized excipients for extended shelf life of >18 months at 4°C

Significantly improved clinical trial efficiencies increasing monthly enrollment by 300%; Completed enrollment of Phase 2 NCFB and SAB trials

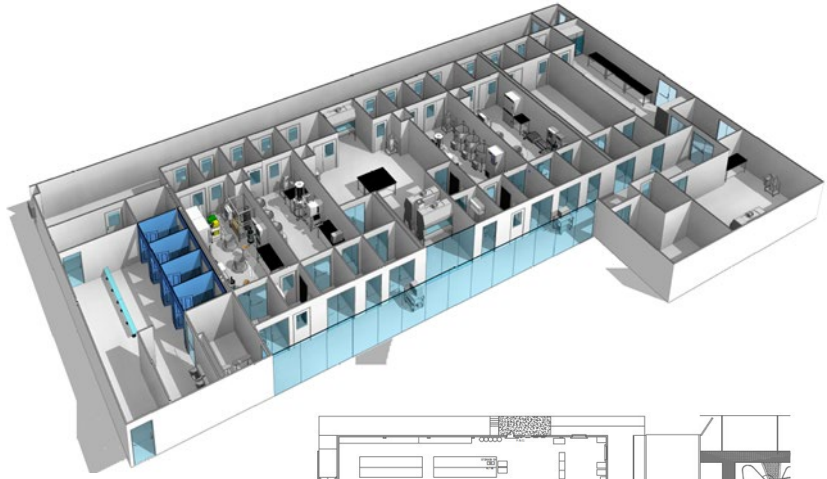
Optimized fermentation and purification leading to increased yields to support commercialization

Control of timelines with QC assays and manufacturing all in house; 10,000 SF cGMP space including state-of-the-art fill-finish

Validation of all release assays;

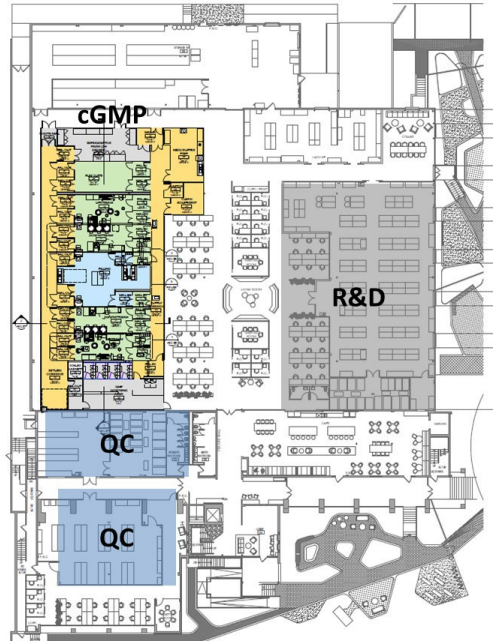
High personnel retention with documented expertise

Manufacturing Infrastructure Creates Competitive Advantage and Alternate Revenue Streams



State of the art cGMP manufacturing facility

- 10,000 square foot purpose-built facility
- Essential infrastructure for phage production
  - Two independent production lines with dedicated upstream and downstream cleanrooms
    - Ability to manufacture multiple products in parallel
    - Additional independent Flex Suite with potential to act as a third production line
  - High-throughput semi-automated aseptic filling line
    - Versatile configurations for final product form (liquid, powder, vials, syringes)
    - System turn-around time for different drug product: within 24 hours



Scalability provides capacity for contract manufacturing as well as in-house programs

- Additional revenue stream from contracting additional space
  - CMC capabilities and infrastructure adaptable to other advanced biologics
  - Profitable manufacturing agreement(s) anticipated in 2025/2026
- In-house capabilities derisk late-stage trials and allow for efficient commercial scale production with fewer supply chain disruption threats

Quality Control Laboratories

Equipment Qualifications Underway In Readiness For EOP2 Meetings And Phase 3 Operations

cGLP QC Lab 1

Analytical testing

cGLP QC Lab 2

Environmental monitoring team, sample receipt from cGMP manufacturing

Armata has cGMP Capacity to Support Ph3 Trials and Commercialization

Space Includes Suite With High-Throughput Semi-Automated Aseptic Filling Line

Complete Filling Line; Room Balanced

Filling Unit Successfully Commissioned

- Installation Qualification (IQ) and Operational Qualification (OQ)
  - ➢ Final steps in progress

Harnessing significant advantages of phage-based anti-infectives

A leading developer of high-purity, pathogen-specific phage therapeutics:

- Potential alternative to antibiotics – effective while protecting normal human microbiome
- Activity independent of antibiotic resistance, providing critical alternative in setting of increasing MDR worldwide
- De-risked modality: worldwide usage (pre-antibiotic era), decades of therapeutic use data ex-US (post-antibiotic era)

Diversified pipeline allows multiple shots on goal with compelling market opportunities

Two clinical programs ongoing with compelling early data, each approaching major value inflection point:

- AP-PA02: Phase 2 fully enrolled for P. aeruginosa in NCFB, readout anticipated in 4Q24
  - Positive top-line results from Phase 1b/2a trial of inhaled AP-PA02 in patients with cystic fibrosis (1Q23)
- AP-SA02: Phase 1b/2a fully enrolled for S. aureus bacteremia ("diSArm"); readout anticipated in 1Q25

Clinical strategy with "parallel pathways" optimizing for both rapid regulatory approval and large commercial opportunity

- Commercial models project peak year sales exceeding $2B for AP-PA02 and AP-SA02 across 4 lead indications
- Products will benefit from durability and pricing advantages of biologics in U.S. market

Agile platform to efficiently develop programs for new or expanded indications

World-class manufacturing facilities and development capabilities

Industry leading phage-specific drug manufacturing platform provides competitive advantage and partnerships

- In-house cGMP excellence which creates competitive advantage for internal pipeline with optimized purity allowing for higher dose escalation and longer treatments
- State of the art fill and finish line with significant proprietary process knowledge
- Potential for additional revenue source through large-molecule third party manufacturing contracts

Strong leadership team and key partnerships

Seasoned leadership team brings track record and differentiated relationships with partners

- Demonstrated operational excellence and delivery across multiple functional areas
- Successful track record in capital raises, M&A, and exits
- Deep industry and government relationships have led to non-dilutive financing and potential for future support (e.g., CF Foundation, U.S. Department of Defense)

Conclusions

- Phages hold great promise but they need to be
- Carefully selected based on host range
- Carefully manufactured and purified while maintaining potency
- AND Trials need to be carefully designed and we need to ensure we do placebo controlled trials