



## PURPOSEFUL • PRECISE • POWERFUL

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Todd Patrick, Chief Executive Officer

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July 13, 2021

NYSE American: ARMP

# 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: the potential future of antibiotic resistance; the ability for bacteriophage therapies to disrupt and destroy biofilms and restore sensitivity to antibiotics; the 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; the drug product candidates to be supplied by Armata for clinical trials; bacteriophage technology being uniquely positioned to address the global threat of antibiotic resistance; the protection of intellectual property, including pending and issued patents; the activities to be performed by specific parties in connection with clinical trials; the potential use of bacteriophages to treat bacterial infections; research and development plans; the development of bacteriophage-based therapies; the ability to select combinations of phages to formulate product candidates; the ability to manufacture product candidates; the pursuit of additional indications; the safety and efficacy of product candidates; collaborations with third parties and the potential markets and market opportunities for product candidates; potential market growth; our partnership with Merck, known as MSD outside of the United States and Canada, the Cystic Fibrosis Foundation, and U.S. Department of Defense; our ability to achieve our vision, including improvements through engineering and success of clinical trials; our ability to finance our operations; our ability to meet anticipated milestones for 2021 and 2022; Armata's ability to be a leader in the development of phage-based therapeutics; the expected use of proceeds from the recent \$15 million grant; the expected impact of the COVID-19 pandemic on the Company's operations and any statements 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, to be more effective than previous candidates; our ability to expedite development of AP-PA02; our ability to advance our preclinical and clinical programs and the uncertain and time-consuming regulatory approval process; our ability to develop products as expected; our ability to sufficiently fund our operations as expected, including obtaining additional funding as needed; and any delays or adverse events within, or outside of, our control, caused by the recent outbreak of COVID-19. 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 registration statement, 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.*

# Investment Highlights

## A Leader in Phage Therapeutics: First Multi-Center Randomized Trial in CF Patients

Pathogen-specific phage cocktails targeting acute/chronic infections of unmet medical need for multiple clinical indications

- *P. aeruginosa* product candidates for respiratory infections
  - Cystic fibrosis
  - Non-cystic fibrosis bronchiectasis
  - Hospitalized pneumonia
- *S. aureus* phage product candidate
  - Complicated bacteremia
  - Prosthetic joint infection

Phage-specific GMP drug manufacturing facilities

- In-house manufacturing and formulation capabilities

Strong partnerships to support phage development

- Cystic Fibrosis Foundation, US Department of Defense, Merck

Strong board and executive leadership team

- Seasoned drug development team
- Successful track record in capital raises, M&A, and exits

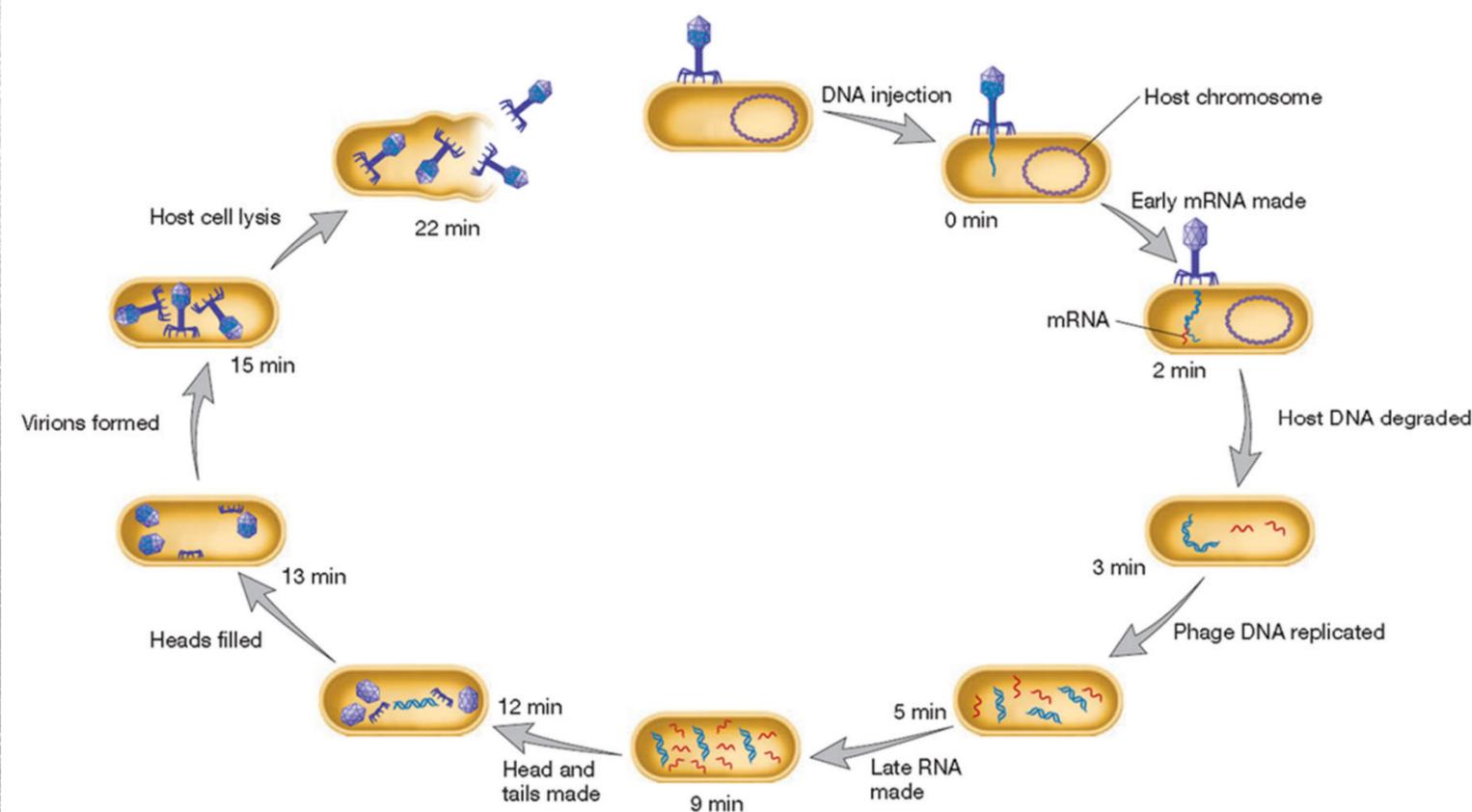
\$45 million in equity capital and \$20 million in supporting grants received since early 2020

# Bacteriophages: Natural Predators of Bacteria

Infection Yields Progeny and Results in Bacterial Lysis



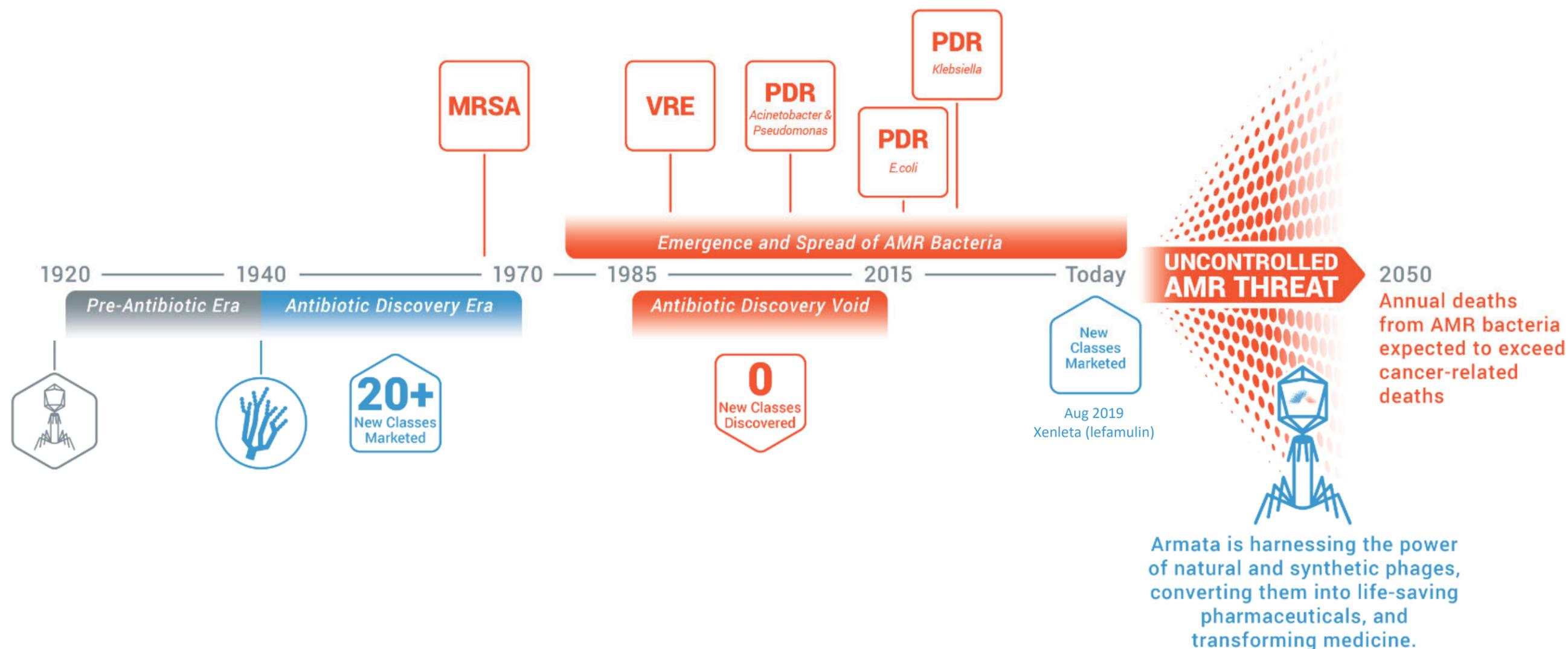
- The most ubiquitous organisms on Earth
- Bacteria specific, including MDR strains
- Prior history as therapeutic agent
  - Antibiotics displaced phage use
- Drug-resistant threat revitalized phage use



Source: Prescott Harley Klein's Microbiology, 7th Ed.

# Unmet Need in Antibiotic Resistant Infections

## Phages May Provide a Powerful Solution to an Urgent Public Health Threat



MRSA: methicillin-resistant *Staphylococcus aureus*; VRE: vancomycin-resistant enterococci; PDR: pandrug-resistant; AMR: antimicrobial resistance.

Armata is harnessing the power of natural and synthetic phages, converting them into life-saving pharmaceuticals, and transforming medicine.

# Phage as a Novel Therapeutic Modality vs. Classic Antibiotics

## Highly specific bactericidal agents will not disrupt microbiome

- Lowers risk of infection by *Clostridium difficile* and vancomycin-resistant enterococci

## No host toxicities associated with chemical structures

- Toxicities associated with antibiotics: kidney, bone marrow, hearing loss...

## Not an incremental change to an existing chemical structure (novel therapeutic class)

- Distinct mechanism of bactericidal action
- Activity independent of antibiotic resistance
- Provides much needed therapy for multidrug-resistant infections

## Replication competent

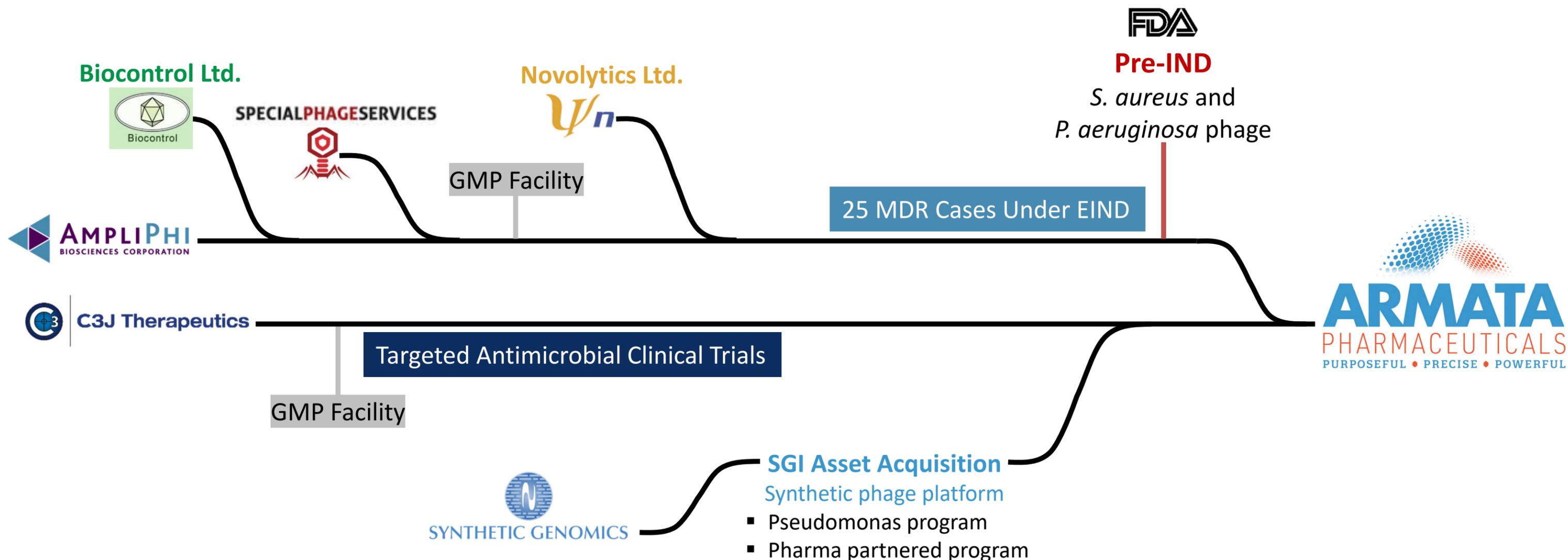
- Potential to autoregulate dose

## High potential for added functionality through genetic engineering

- Biofilm degradation, bystander killing, tissue localization

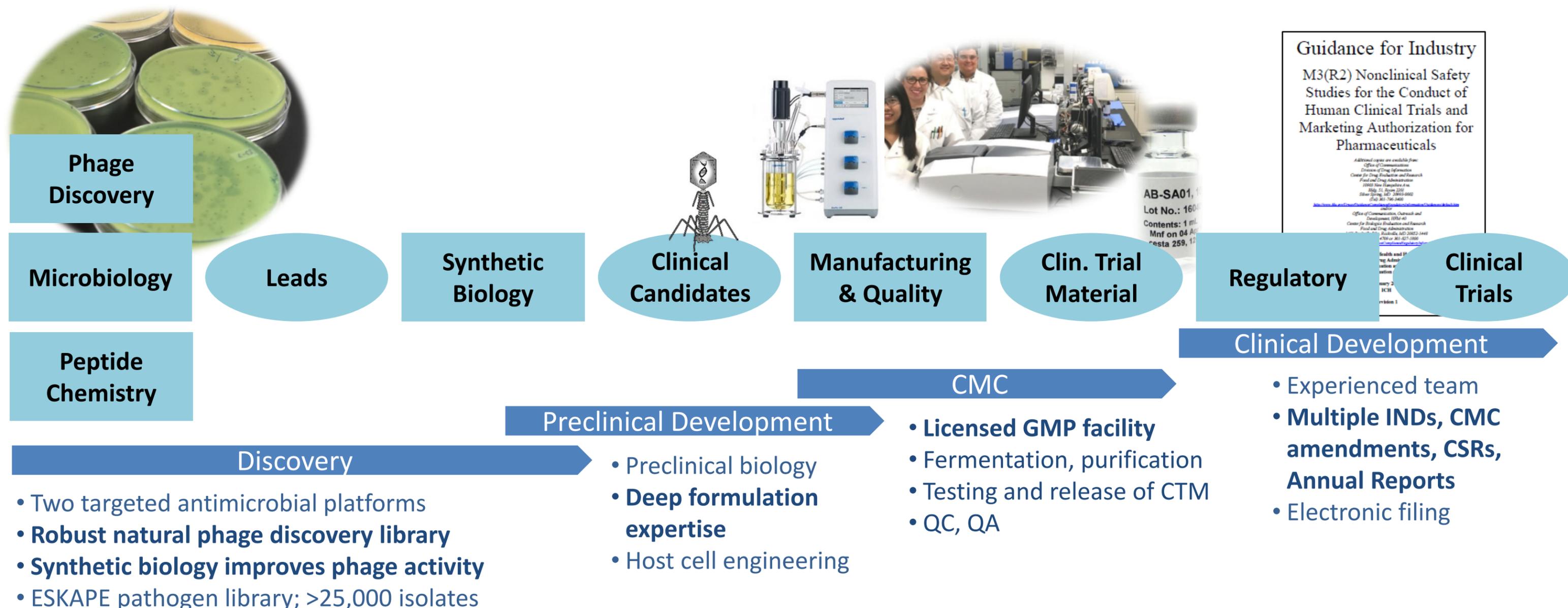
# Armata Stands on Long History of Phage Development

## M&A Yields Leading Phage Company



# Armata's Capabilities and Operational Overview

Purposely Built for Phage Product Development, Bench to Clinic



# Pipeline

Program	Discovery	Preclinical	IND-Enabling	Phase 1b/2	Partner	
<i>Pseudomonas aeruginosa</i> Respiratory Infections	AP-PA02	CF	→ 			 CYSTIC FIBROSIS FOUNDATION
		NCFB	→			
	AP-PA03	Pneumonia	→			
<i>Staphylococcus aureus</i>	AP-SA02	Bacteremia	→			US DoD*
		PJI	→			

\*Department of Defense (Naval Medical Research Center, US Army Medical Research Acquisition Activity, Defense Health Agency)  
CF: cystic fibrosis; NCFB: non-CF bronchiectasis; PJI: prosthetic joint infection

## Discovery-Stage

Engineered Phage  
undisclosed target/indication



*Escherichia coli*  
*Klebsiella pneumoniae*



# ***Pseudomonas aeruginosa*** Program

Cystic Fibrosis Lung Infections

Expansion into Non-CF Bronchiectasis

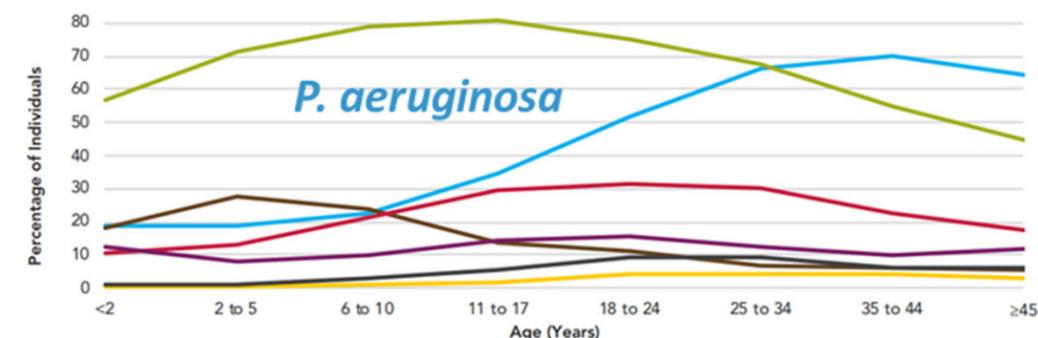
Pneumonia

# *Pseudomonas aeruginosa*: Respiratory Opportunity

## Cystic Fibrosis

- Chronic *P.a.* infections occur in 55% of CF patients by age 25
  - Strongly associated with deteriorating lung function, frequent pulmonary exacerbations, increased mortality
- Increased risk of death at 8 years in children with *P. aeruginosa* infection
- Total antibiotic sales in CF market projected to be >\$400M in 2020

High Prevalence of *P. aeruginosa* in CF Lung Infections



## Non-CF Bronchiectasis

- Chronic respiratory disease, affecting more than 110,000 people (US) and 200,000 people (EU)
- *P.a.* infection in ~30% of cases
  - Poorer lung function and lower quality of life
  - More frequent exacerbations
  - 7-fold increase in hospitalizations
  - 3-fold increase in death

## Hospitalized Pneumonia

- Multi-drug resistant *P.a.*
  - 32,600 new cases in hospitalized patients; 2,700 deaths; \$767M attributable healthcare costs
- *P.a.* pneumonia
  - ~300K hospitalizations/year; high morbidity/mortality; high cost burden (excess cost of >\$40,000/patient)

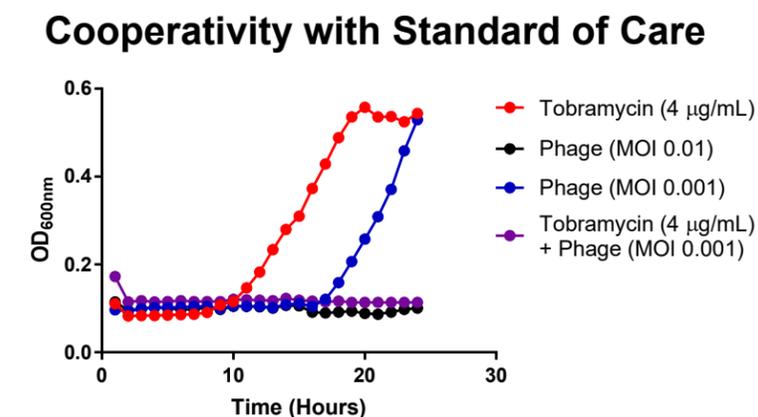
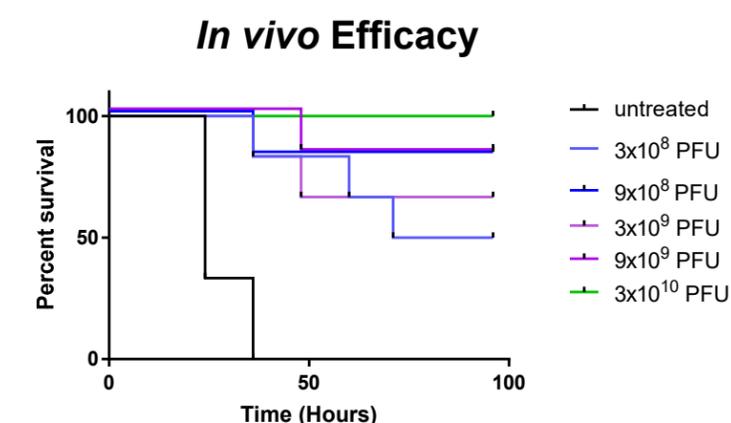
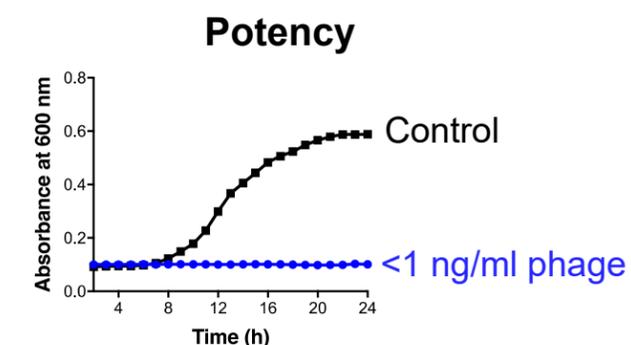
# Phage Products Tailored for *P.a.* Respiratory Infections

## Multiple-phage composition

- Distinct phage families
- Targets different receptor classes
- Cooperative and compatible
- Highly potent
- Broadly active against clinical isolates

## Indication-specific attributes

- Pursue AP-PA02 in follow-on indication
  - Inhaled ROA in NCFB; leverages CF trial data
- Develop AP-PA03 for pneumonia
  - Altered composition for disease-specific isolates



*P.a.*: Pseudomonas aeruginosa; ROA: route of administration; CF: cystic fibrosis; NCFB: non-CF bronchiectasis

# Pseudomonas Respiratory Infections

## Clinical Outline

### Phase 1b/2a Study



**Patient population:** Medically stable chronically-infected CF patients

**Route of administration:** Nebulized

**Goals:** Safety and tolerability, pharmacokinetics, dose exploration

### Follow-on Studies in CF

**Efficacy endpoints in:**

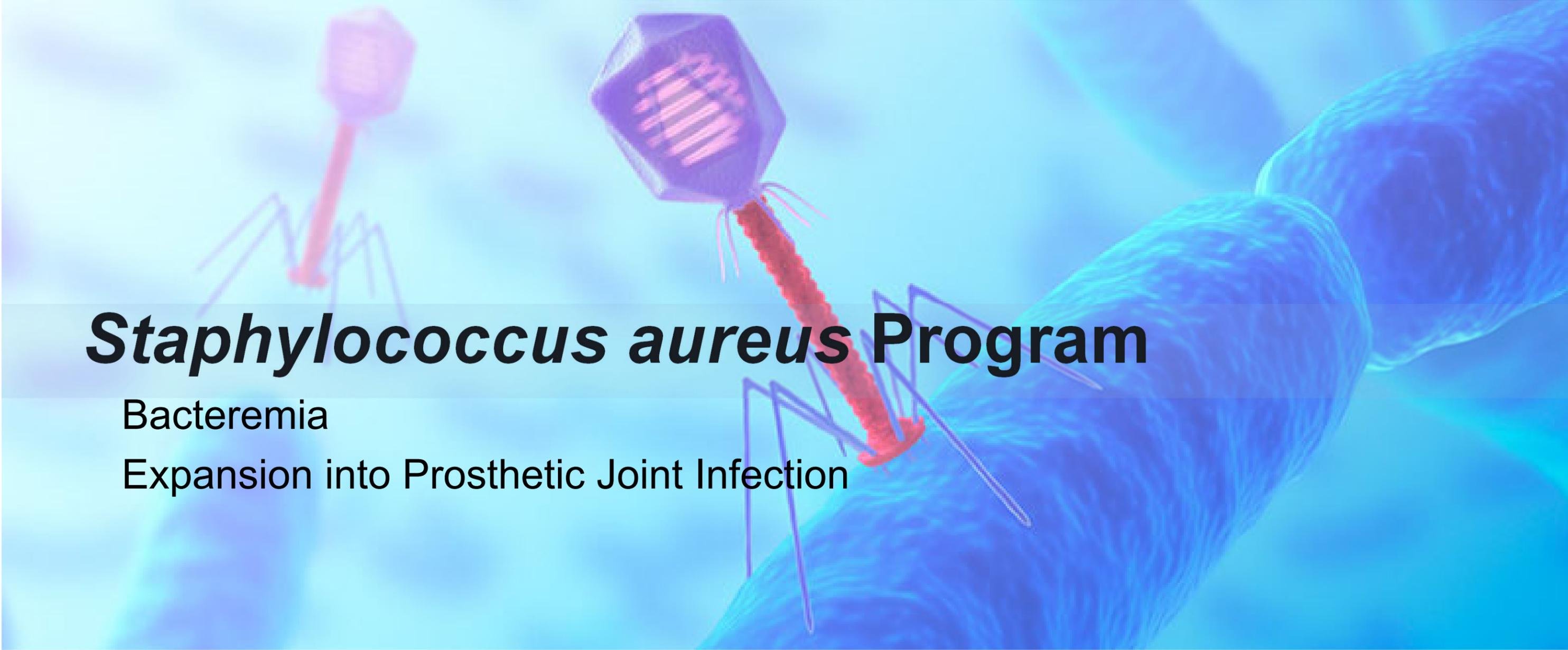
Chronically-infected patients

Primary/early intermittent infections

### Additional Indications

**Non-CF bronchiectasis**

**Pneumonia (AP-PA03)**

A microscopic illustration showing several Staphylococcus aureus bacteria and bacteriophages. The bacteria are depicted as purple, spherical structures with a textured surface. The bacteriophages are shown with a hexagonal head, a long tail, and tail fibers. They are positioned on a blue, textured surface that represents a cell membrane or a prosthetic joint. The background is a soft, blue gradient.

# ***Staphylococcus aureus* Program**

Bacteremia

Expansion into Prosthetic Joint Infection

# Medical Opportunity

## Methicillin-Resistant *S. aureus* (MRSA): A Serious Threat<sup>1</sup>

- 323,700 new cases in hospitalized patients
- 10,600 deaths
- \$1.7 billion of attributable healthcare costs

## First indication: *S. aureus* bacteremia (SAB)<sup>2</sup>

- *S. aureus* is the most commonly identified pathogen in hospital- and community-acquired bacteremia
  - 40% mortality in SAB
- Annually in the US there are approximately 200,000 hospitalizations for SAB
  - Average hospital costs to patients with nosocomial SAB ranges between \$40,000 (MSSA) and \$114,000 (MRSA)
- Complicated SAB responds poorly to SOC
  - While biofilms can render traditional antibiotics ineffective, phages have the ability to penetrate the biofilm

## Follow-on indication: *S. aureus* Prosthetic Joint Infection (PJI)<sup>3</sup>

- Total number of PJI-related revision surgeries is expected to grow
  - Rise from 70,000 in 2020 to 144,000 in 2040 in the US and EU5
- US is the largest market for PJI
  - US accounts for 61% of PJI-related revision surgery in 2020 (71% by 2040)
- High rates of *S. aureus* PJI infection across all regions
  - *S. aureus* accounts for up to 47% of all PJI infections across the US and EU5
- Total hospital charge for PJI estimated at \$150,000

<sup>1</sup> US Centers for Disease Control and Prevention, *Antibiotic Resistance Threats in the United States, 2019*.

<sup>2</sup> Clinical Leader, Sept 6, 2018; Clin Microbiol Rev. 2012;25(2):362-386; ICHE. 2007;28(3):273-279; Rev Infect Dis. 1987;9(5):891-907; ICHE. 2009; 30(5):453-460; JAMA Intern Med. 2013;173(22):2039-46.

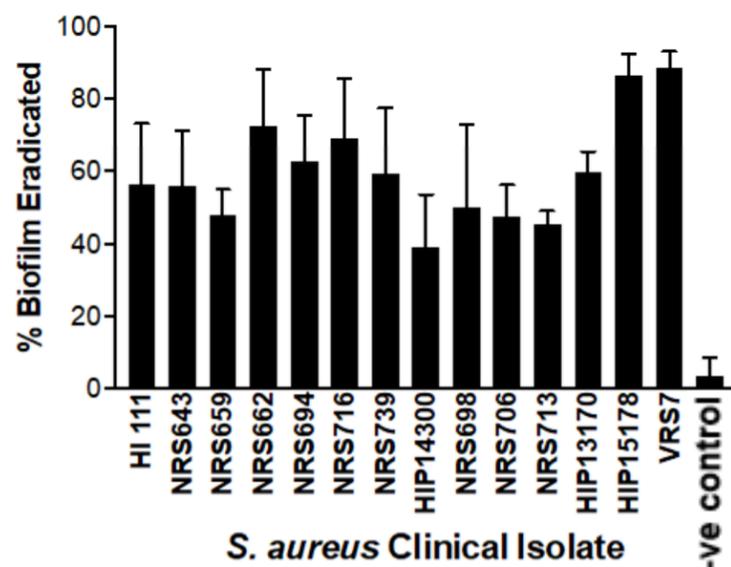
<sup>3</sup> GlobalData PJI Market Assessment

# AP-SA02: Phage Product Targeting *S. aureus*

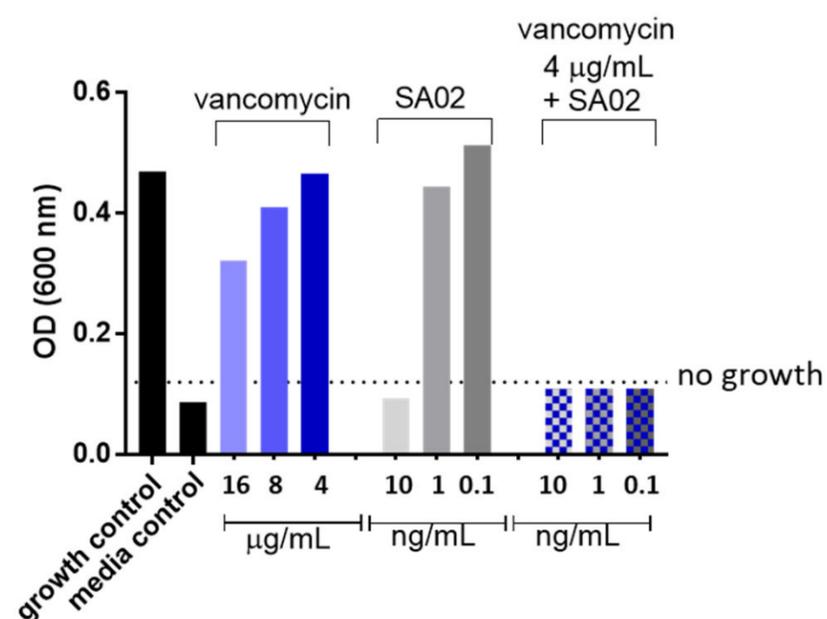
## Robust Therapeutic Attributes

- Host range coverage of >90% across clinical isolates tested
- Robust potency against drug-resistant isolates, including MRSA, VISA, VRSA
- Penetrates pre-existing biofilms
- Maintains activity in presence of current standard anti-staphylococcal therapy

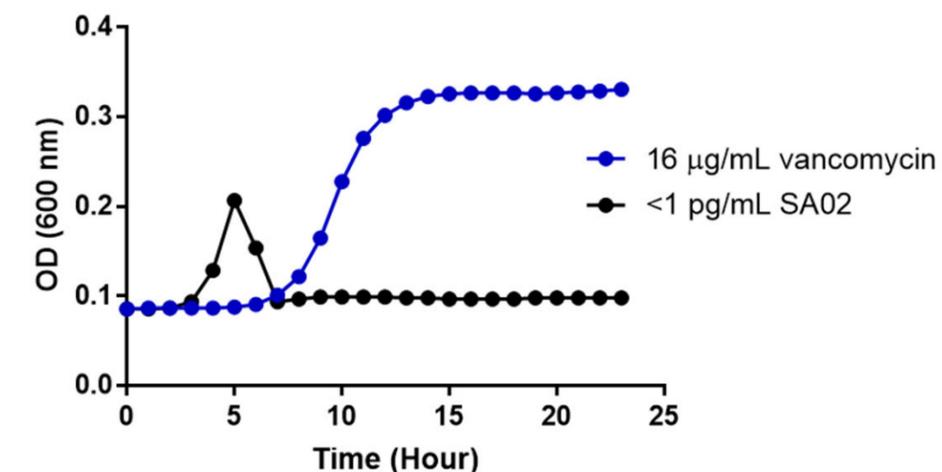
### Biofilm eradication by AP-SA02



### Synergistic activity of AP-SA02 and vancomycin against VRSA



### AP-SA02 active at very low dose



# AP-SA02: Clinical Outline

\$15M in Nondilutive Funding from US DoD to Support Phase 1b/2 Bacteremia Study

## Near-term Ph 1b/2 study

**Patient population:** Complicated bacteremia stratified for MRSA

**Route of administration:** I.V. as adjunct to best available therapy

**Goals:** Safety and tolerability, pharmacokinetics, dose exploration, exploratory efficacy endpoints

## Follow-on study

**Efficacy in bacteremia**

Fixed dose and schedule

Refined patient population

Powered for rigorous demonstration of efficacy

## Follow-on Indication

**Periprosthetic joint infection (PJI)**

# Corporate Summary

# Strong Global IP Position Through Pending and Issued Patents

15 Patent Families, Long-Life Patents, Patents Granted in all Major Jurisdictions

## Armata's patents and applications cover:

Therapeutic phage cocktails (Staphylococcus and Pseudomonas) and uses thereof

Synthetic phage and methods of manufacture thereof

Beneficial effects of phage treatment

Phage combinations for treating biofilm infections

Sequential use of phages in combination with antibiotics

Methods to reduce antibiotic resistance

Methods to design therapeutic combination panels of phage

Disinfection methods using bacteriophages

Phage mutants having increased bacterial host spectra



Jurisdiction	Issued	Pending
U.S.	11	9
R.O.W.	64	39

Expiration dates through 2041

# Anticipated Topline Milestones

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2021/2022

## ***Pseudomonas* phage program**

- Obtain topline data for Phase 1b/2a cystic fibrosis study
- Obtain regulatory approval for non-CF bronchiectasis
- Obtain regulatory approval for pneumonia

## ***Staphylococcus* phage program**

- Obtain clearance from FDA for US IND for bacteremia
- Initiate Phase 1b/2a bacteremia study
- Obtain regulatory approval for prosthetic joint infection

# Leadership and Board of Directors

## Diverse Public Company Drug Development Expertise

### Management

**Todd Patrick** *CEO*



**Mina Pastagia** *VP, Clinical Development*



**Brian Varnum** *President and CDO*



**Duane Morris** *VP, Operations*



**Steve Martin** *CFO*



### Board of Directors

**Jules Haimovitz** *Chair*



**Joseph Patti**



**Odysseas Kostas**



**Todd Peterson**



**Robin Kramer**



**Sarah Schlesinger**



**Todd Patrick**



# Funding and Capitalization

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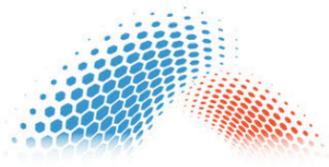
As of March 31, 2021

## Cash Position

- \$22.5 million
- During Q1 we executed a \$20 million private placement of common stock and warrants with a subsidiary of Innoviva, Inc. (NASDAQ: INVA)
  - Innoviva is a holding company receiving royalties from GSK; \$1.3B market capitalization

## Capitalization

- 24.8 million common shares outstanding; no debt
- Trades on NYSE American exchange: ARMP



# ARMATA

PHARMACEUTICALS

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