Surviving a Multi drug resistant infection: my/one patients experience

Thomas L. Patterson, PhD,
Distinguished Professor of Psychiatry
University of California, San Diego

The Saga Began In Egypt

No hospital, pancreatitis


Centers for Disease Control and Prevention

Evac’ed to Germany, psudo cyst Acenobactor Boumeni Araqibactor

Uniklinik Antibiogram

Name: **Patterson**
Vorname: **Thomas Leroy (M)**
Geb. Datum: *** 18.02.1947**

Untersuchungsmaterial: **Abszesspunktat**
Abnahmeort: **transgastrales Punktat**

Anforderung:
Mikrobiologische Untersuchung

Befund:

1: Acinetobacter baumannii (4MRGN) ***vereinzelt***
*Keine Spezies-spezifischen Grenzwerte vorhanden.

2: Candida albicans ***reichlich***

3: Candida glabrata ***reichlich***
Das Antimykogramm siehe Befund 51569953.

Bemerkung/Bewertung
Die anaeroben Kulturen werden weiterbebrütet. Nur im positiven Falle erhalten Sie einen erneuten Befund.
Telefonische Befunddurchsage erfolgte am 10.12.2015 um 10:03 Uhr
Faxmitteilung erfolgte am 10.12.2015 um 10:17 Uhr
4MRGN: Multiresistentes gramnegatives Stäbchenbakterium mit Resistenz in 4 Antibiotikagruppen (KRINKO-Definition).
Aufgrund der Meldepflicht nach Hessischer Verordnung für besondere Antibiotikaresistenz ist dieser Befund an das Amt für Gesundheit gemeldet worden.

Antibiogramm

Keim	1	*MHK*				
Piperacillin	R					
Cefotaxim	R					
Ceftazidim	R					
Meropenem	R	>=32				
Gentamicin	R					
Tobramycin	R					
Amikacin	R	>=256				
Co-Trimoxazol	R	4				
Fosfomycin i.v.	R					
Levofloxacin	R					
Ciprofloxacin	R					
Minocyclin	S	4				
Rifampicin	*	8				
Colistin	S	1				
Ampicillin/Sulbactam	R	>=256				

Erläuterung: S = sensibel, I = intermediär, R = resistent

Antimykogramm

Keim	3	*MHK*				
Caspofungin	S	0.125				

Erläuterung: S = sensibel, I = intermediär, R = resistent
Nummerische Angaben sind MHK in µg/ml

Review

Emerging therapies for multidrug resistant *Acinetobacter baumannii*

Meritxell García-Quintanilla*, Marina R. Pulido*, Rafael López-Rojas, Jerónimo Pachón, and Michael J. McConnell

Unit of Infectious Disease, Microbiology, and Preventive Medicine, Institute of Biomedicine of Sevilla (IBiS), University Hospital Virgen del Rocío/CSIC/University of Sevilla, 41013, Sevilla, Spain

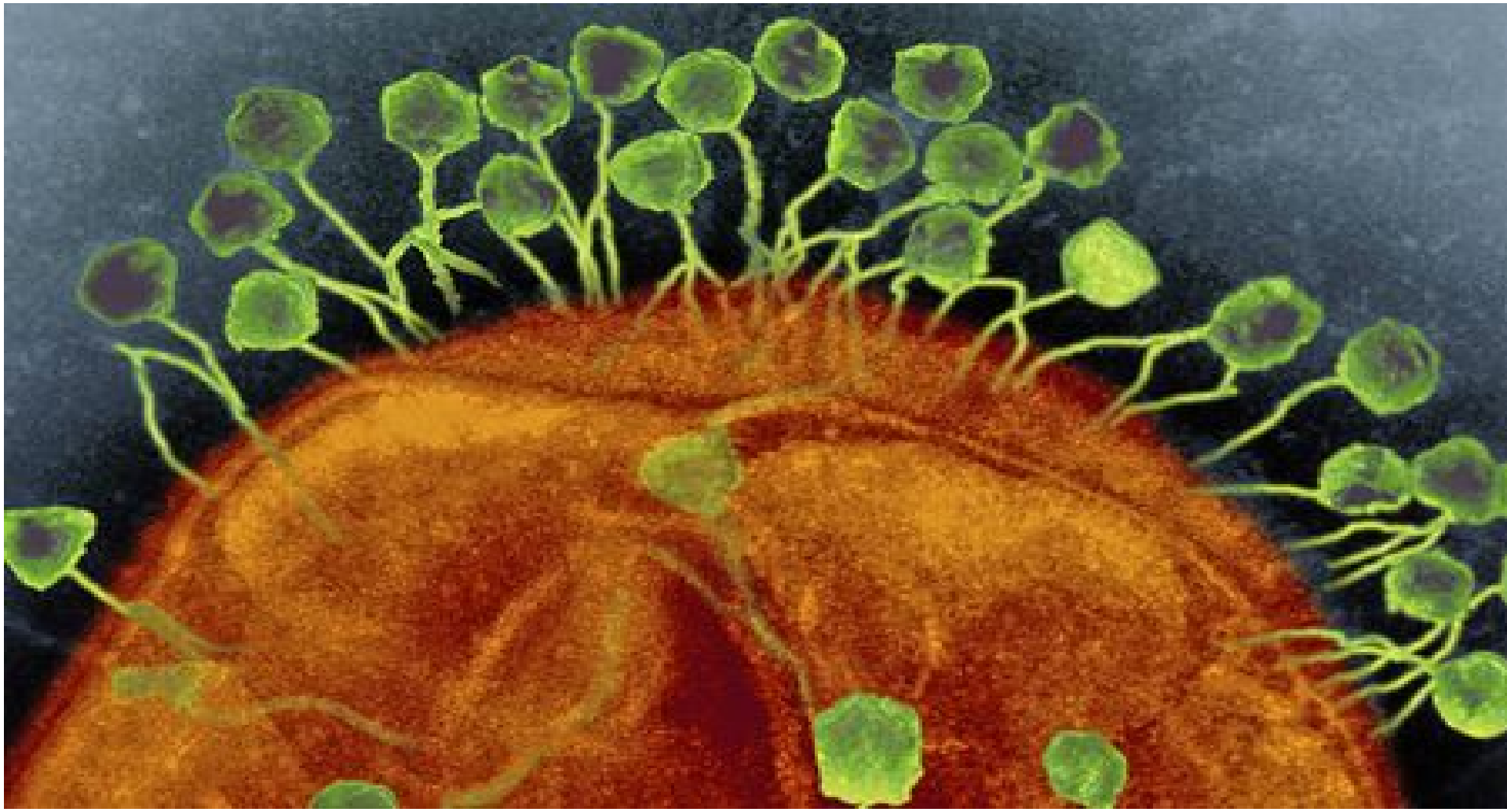
The global emergence of multidrug resistant *Acinetobacter baumannii* has reduced the number of clinically available antibiotics that retain activity against this pathogen. For this reason, the development of novel prevention and treatment strategies for infections caused by *A. baumannii* is necessary. Several studies have begun to characterize nonantibiotic approaches that utilize novel mechanisms of action to achieve antibacterial activity. Recent advances in phage therapy, iron chelation therapy, antimicrobial peptides, prophylactic vaccination, photodynamic therapy, and nitric oxide (NO)-based therapies have all been shown to have activity against *A. baumannii*. However, before these approaches can be used clinically there are still limitations and remaining questions that must be addressed.

these infections. In this review, recent advances in nonantibiotic approaches that are currently being explored for prevention and treatment of *A. baumannii* infections are described.

Phage therapy

Bacteriophages, or phages, are viruses that infect, and in some cases lyse, bacterial cells. The potential use of bacteriophages as antibacterial agents was recognized at almost the same time as their discovery nearly a century ago [9]. However, the dawn of the antibiotic era slowed interest in this area in western countries. In the present context of infections caused by multidrug-resistant bacteria for which there are a decreasing number of active antimicrobials, research exploring the use of phage therapy as an alternative treatment has been renewed. In 2010

Trends in Microbiology, 2013



Phage Hunt

Dr. Ry Young
Texas A&M- Center for Phage Technology

Lt. Commander
Hamilton Theron
U.S. Navy


Happy Birthday!
HAPPY BIRTHDAY!


Tom’s A.baumannii isolate being attacked by Navy phages
Courtesy of Dr. Robert Pope,
National Biodefense Analysis & Countermeasures Center,
Dept of Homeland Security
500 nm

BuzzFeed NEWS / REPORTING TO YOU

Her Husband Was Dying From A Superbug. She Turned To Sewer Viruses Collected By The Navy.

Scientists have long dismissed "phage therapy" as a fringe idea pushed by eccentrics who enjoy fishing in sewage. But now the Navy is betting on it.

WELLNESS

Sewage Saved This Man's Life. Someday It Could Save Yours.

Bacteriophages — viruses found in soil, water and human waste — may be the cure in a post-antibiotic world.

By Lauren Weber

Daily Mail .com

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Could gargling a virus that eats bacteria solve the SUPERBUG CRISIS? As overused antibiotics become less and less effective, a tantalising discovery may revolutionise healthcare

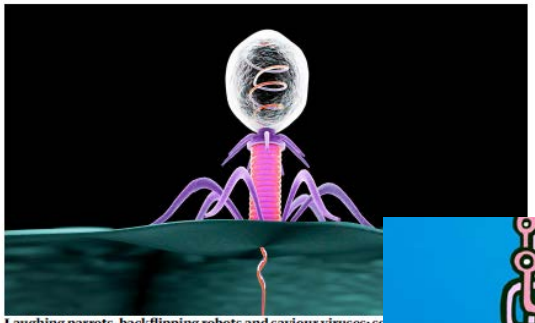
- Steffanie Strathdee feared the worst when husband Tom Patterson comatosed
- Husband of 13 years lay in a deep coma, the victim of an aggressive superbug
- His heart, lungs and major organs were all shutting down with little hope left
- Apparently miraculous recovery is result of natural phenomenon that could combat growth of antibiotic-resistant infections and also treat sore throats

HUFFPOST

JAMA®

The Journal of the American Medical Association

theguardian



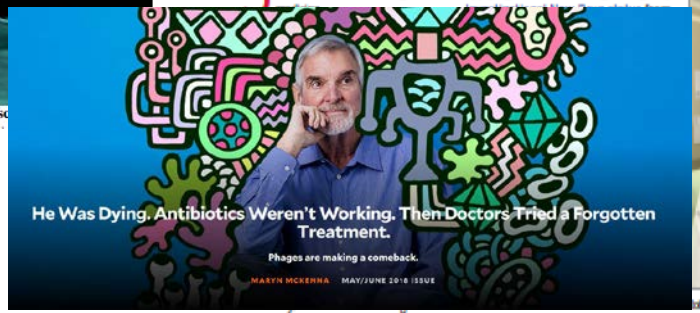
Laughing parrots, backflipping robots and saviour viruses: so

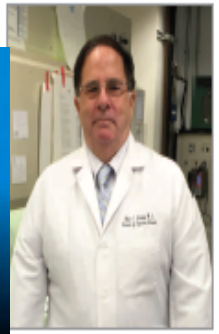
Medical News & Perspectives

Phage Therapy's Role in Combating Antibiotic-Resistant Pathogens

Jeff Lyon

Sometimes, what's old is new again—even in the ever-advancing world of … istered under Schooley's direction after applying for and receiving Emergency …





Robert T. Schooley, MD

THE LANCET

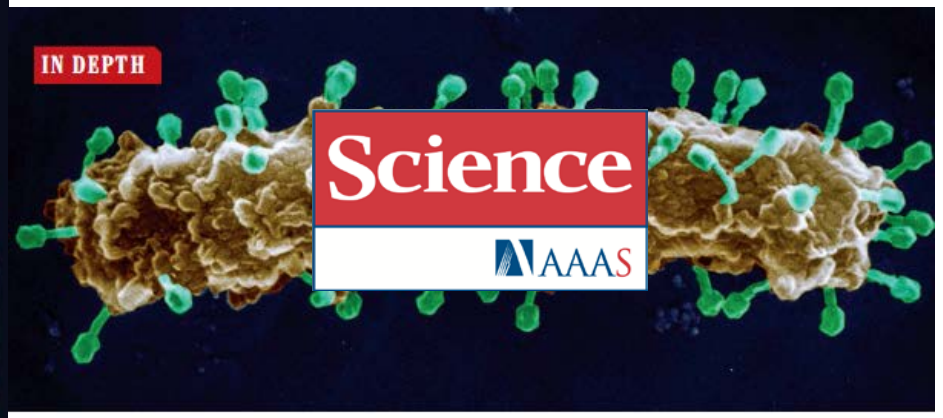
Phage therapy: revival of the bygone antimicrobial

The idea of using bacteriophages as vectors for antimicrobial therapy has existed for decades, but development towards clinical application still lags behind. Geoff Watts reports.

Phage Therapeutics at IPATH

Patient #	Age	Underlying Condition	Organism	Outcome
1 (Tom Patterson)	67	Disseminated infection	*A. baumannii*	Success
2	67	Bilateral Lung Transplant	*P. aeruginosa*	Success
3	74	Open Head Trauma	*A. baumannii*	Inadequate trial
4	23	CF; Pre Lung Transplant	*P. aeruginosa*	Lung Tx List
5	65	Infected LVAD	*P. Aeruginosa +*	Success
6	~63	Infected LVAD	*S. aureus*	Success
7	61	Prosthetic Joint Infection	*S. aureus*	Inadequate trial

A case report on the successful use of a genetically modified phage cocktail to treat a human MDR infection will be published within the next few weeks. This is also the first human case of a Mycobacterium infection to be treated with phage therapy, that holds hope that phage therapy could be used to treat TB. The patient was treated by IV in the UK; the people and process involved was a direct result of Tom Patterson's case.



BIOMEDICINE

U.S. center will fight infections with viruses

Proving ground for phage therapy will organize full clinical trials of the approach

IPATH Center for Innovative Phage Applications and Therapy, The CF trial is being funded by NIAID in partnership with WRAIR.

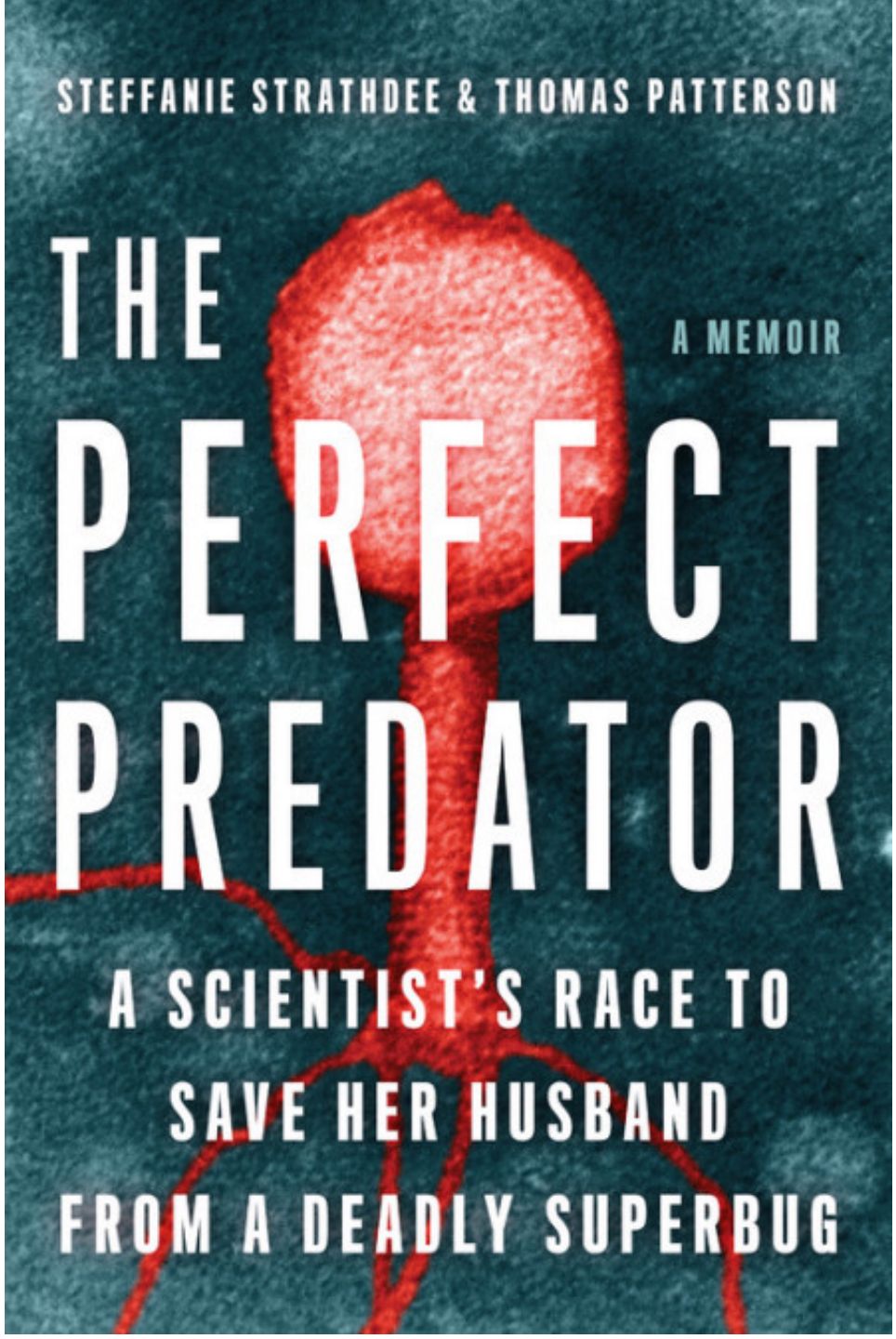
BRIEF COMMUNICATION
https://doi.org/10.1038/s41591-019-0437-z
nature medicine

Engineered bacteriophages for treatment of a patient with a disseminated drug-resistant *Mycobacterium abscessus*

Rebekah M. Dedrick[1,4], Carlos A. Guerrero-Bustamante[1,4], Rebecca A. Garlena[1], Daniel A. Russell[1], Katrina Ford[2], Kathryn Harris[2], Kimberly C. Gilmour[2], James Soothill[2], Deborah Jacobs-Sera[1], Robert T. Schooley[3], Graham F. Hatfull[1*] and Helen Spencer[2*]

Patient Perspective

- Nine months in hospital, 7 cases of septic shock
  - Hallucinations/delusions
    - Origin: Toxins, Sleep deprivation, ICU psychosis
  - While in a coma: I could hear you
    - Lesson: be careful what you say around patient
    - Cognitive deficits avoided via mental stimulation
- Stigma
  - ICU infection precautions
    - I was a pariah
  - Phage therapy = virus
- I was privileged: national and international effort
- I represent evidence based hope for Phage therapy



THANK YOU

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