



## Can a virus be the answer to the battle against superbugs?

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### Abstract:

According to the World Health Organization (WHO), antimicrobial resistance (AMR) is a global crisis that threatens a century of progress in medicine, with alarming levels of resistance being reported by countries of all income levels. The spread of AMR organisms results in common diseases becoming untreatable, and lifesaving medical procedures riskier to perform. Healthcare-acquired infections (HAIs) carry the highest-burden compared to all other infectious diseases including HIV, tuberculosis, and influenza. The Centers for Disease Control and Prevention (CDC) reports that more than 2.8 million antibiotic-resistant infections occur in the U.S. each year, and more than 35,000 people die as a result of it. Although bacteriophage ('phage') therapy was discovered about a century ago, the advancement of antibiotics left this forgotten cure to be well-studied only behind the "iron curtains" of the former Soviet Union.

### Biography:

Andrea Borns, microbiologist and respiratory therapist who holds a Master's of Public Health is the founder and Chief Executive Officer of ZEN Clinical & Bioscience. ZEN is a newly-formed consulting and laboratory client-driven research and development (R&D) company in the field of bacteriophage therapy and phage biotechnology to address emerging infectious and neglected tropical diseases. Originally from Brazil, Andrea started her career in Biomedical Sciences and was involved in HIV/AIDS research during the late '90s in Rio de Janeiro. She is also a former Assistant Professor and Director of Clinical Education at the University of the District of Columbia, USA, where she worked closely with lung diseases, critical care, and mechanical ventilation before her comeback to the bench. Working on the bedside managing and treating cystic fibrosis and ventilator-associated pneumonia patients who lost their lives to superbugs, inspire her to leave Academia and the hospital environment to work in basic science. Andrea worked as a microbiologist at American Type Culture Collection (ATCC) and the



Biodefense & Emerging Infection Resource (BEI), and as a research technician at the Walter Reed Army Institute of Research (WRAIR). Passionate about basic science, Andrea is interested in bringing the knowledge of phage biology from the bench to the bedside so it can benefit patients.

### Publication of speakers:

1. WHO | Focus on AMR - Tools and resources [Internet].: World Health Organization [cited May 4, 2020]. Available from: <http://www.who.int/infection-prevention/tools/focus-amr/en/>.
2. Antibiotic-resistant Germs: New Threats [Internet].; 2020 [updated -03-13; cited May 4, 2020]. Available from: <https://www.cdc.gov/drugresistance/biggest-threats.html>.
3. Are Phage Viruses the Forgotten Cure for Superbugs? [Excerpt] [Internet]. [cited May 4, 2020]. Available from: <https://www.scientificamerican.com/article/are-phage-viruses-forgotten-cure-for-superbugs/>.
4. Schooley RT, Biswas B, Gill JJ, Hernandez-Morales A, Lancaster J, Lessor L, et al. Development and Use of Personalized Bacteriophage-Based Therapeutic Cocktails To Treat a Patient with a Disseminated Resistant *Acinetobacter baumannii* Infection. *Antimicrobial agents and chemotherapy*. 2017 Oct;61(10).
5. Locus Biosciences initiates the world's first controlled clinical trial for a CRISPR enhanced bacteriophage therapy | | Locus Biosciences [Internet].; 2020 [updated -01-08T12:33:08Z; cited May 4, 2020]. Available from: <https://www.locus-bio.com/media/locus-biosciences-initiates-worlds-first-controlled-clinical-trial/>.

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