SUCCESS STORY:

John Haverty

Infection survivor
APT phage therapy recipient
at the Mayo Clinic

Antibiotic resistance evolves. We adapt.

Bacterial resistance to antibiotics has emerged as a global crisis. Traditional drug development processes cannot meet this growing challenge.

APT's phage bank uniquely adapts its spectrum of coverage to address today's - and tomorrow's - toughest bacterial infections.

adaptive phage
THERAPEUTICS

The problem

The antimicrobial resistance crisis will continue to grow as bacteria continue to evolve. More than 2.8 million antibiotic-resistant infections occur in the US each year, and WHO estimates superbugs will be responsible for 10 million deaths annually by 2050. New antibiotic development needs to be able to rapidly adapt to drug resistant bacterial strains.

The adaptive approach

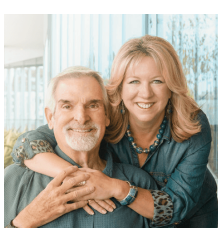
APT is leveraging the great diversity of phages, which have co-evolved over 4 billion years to become the most prolific bactericidal agents on earth. APT's phage bank and the accompanying susceptibility test rapidly match phage to combat a patient's specific infection. APT's phage bank has been shown to be a viable solution to combat antibiotic-resistant infections.

The technology

APT's therapeutic approach was conceived at the National Institutes of Health (NIH) by APT co-Founder, Carl R. Merril, MD, CAPT USPHS (ret), was further developed by the U.S. Department of Defense, and is now in advanced stages of development by APT. APT has licensed phage collections, including those from the U.S. Navy Biological Defense Research Directorate (BDRD), and the Walter Reed Army Institute of Research (WRAIR). Beyond a large and diverse phage library, APT's technical innovation includes manufacturing processes that enable large-scale production. APT's proprietary *in vitro* assays match phage therapy to patient specific infections and are advancing toward global scale and availability through an exclusive relationship with the Mayo Clinic.

Company overview

APT is a U.S.-based privately held clinical stage biotech company. In addition to sponsoring clinical trials in support of regulatory licensure efforts, APT has provided early access to its phage therapy for numerous critically ill patients in which standard-of-care antibiotics had failed. The company has financial support from Deerfield Management, the AMR Action Fund, the Mayo Clinic, and the U.S. Department of Defense.



SUCCESS STORY:

APT harnesses phage to fight deadly infections

In 2016, APT's approach achieved its first in-human success with the rescue of Tom Patterson, a critically ill patient infected with antibiotic resistant *Acinetobacter baumannii*.

Antibiotic resistance is now a global crisis.

What has been learned from the increasing failure of antibiotics is that applying a static solution to an evolving problem will only be effective for a limited period of time. A durable cure requires an adaptive approach.

APT's phage bank investigational therapy, made from an ever-expanding and diverse collection of therapeutic agents, combined with susceptibility testing, allows for a rapid, precise, and adaptive approach to dealing with bacterial infections.

"Phage therapy is a leading alternative to antibiotics"

FDA Commissioner Gottlieb
Address on the Antibiotic Crisis, 2018

APT is building domestic manufacturing and supply chain to reduce US dependence on Chinese and other foreign suppliers for our critical infectious disease therapeutics and vaccines.

APT's investigational phage therapy has been successfully used to treat dozens of emergency cases world-wide. Early access case studies are available via aphage.com/case-studies.

Pharmacuetical industry failures

Traditional antibiotics are compromised due to their predetermined spectrums of coverage, which leads to drug obsolescence as bacteria evolve resistance. The repeating pattern of drug development followed by obsolescence has led to many commercial failures in the pharmaceutical industry. Additionally, newer antibiotics are increasingly toxic, and their supply chains are dependent on China, India and others.

APT's ability to adapt to emerging resistance is the key to combat bacterial infections in a safe, durable therapeutic way.

Bacteriophage (phage) are viruses that eradicate their specific targeted bacterial host. Phages have a well-established safety profile as a potential therapeutic. APT has developed phage purification methods to allow for systemic, intravenous administration.

Scientific and Business Collaborators

- U.S. Navy Biological Defense Research Directorate
- Center for Innovative Phage Applications and Therapeutics (IPATH) at UC San Diego
- Hackensack Meridian Health
- Mayo Clinic
- Walter Reed Army Institute of Research
- Medical Technology Enterprise Consortium
- Paul Turner Lab, Yale University
- National Institutes of Health
- Stanford University
- University of Maryland
- Hebrew University

Mayo Clinic collaboration

Our Phage Susceptibility Test (PST) simultaneously tests hundreds of phage candidates selected from APT's phage bank against bacteria isolated from a patient. The PST will identify one or more phage that may be deployed to treat the infection. Working closely with Mayo Clinic Laboratories, APT is accelerating worldwide access to APT's phage bank therapy. The Mayo Clinic is an investor in APT.

adaptive phage THERAPEUTICS

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