

J. Craig Venter Institute scientists awarded five-year, \$5.7M grant from NIH to develop phage treatment

Phage research accelerates with the rise of antibiotic resistance to address increasingly prevalent and difficult to treat bacterial infections

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Derrick Fouts, Ph.D.

Institute (JCVI), led by [Derrick Fouts, Ph.D., has been awarded a five-year, \\$5.7M grant](#) from the National Institute of Health (NIH) to develop a bacteriophage (or phage) therapeutic cocktail to treat infections caused by the bacteria *Klebsiella pneumoniae*. Phages are viruses that only infect specific bacterial host cells. This work will be carried out in partnership with Mikeljon Nikolich, Ph.D. at the Walter Reed Army Institute of Research (WRAIR) and Adaptive Phage Therapeutics (APT).

Dr. Fouts commented, “Phage therapies have been around since the early 1900s but fell out of fashion with the development of effective antibiotic treatments. We are

now seeing alarmingly high levels of antibiotic resistance to drugs we've relied on, spurring renewed interest in phage, engineered using synthetic biology approaches pioneered at JCVI.”

For some strains of *Klebsiella pneumoniae* the mortality rate is as high as 80%.

The therapeutic will be based on a five-phage cocktail, which has already been shown to be effective against 53 out of 100 strains on our test panel. The goal of this project is to optimize our lead therapeutic and its production as well as to conduct the required FDA pre-Investigational New Drug (IND) testing and benchmarking necessary for the successful submission and review of an IND application for a phase 1 clinical trial.

The research will leverage JCVI's history of synthetic and phage genomics, WRAIR's experience developing phage therapeutics and development of mouse models, and APT's current good manufacturing practice (cGMP) production capabilities and experience with phage clinical trials.

The process developed will then become a platform for developing future phage-based therapeutics for other important bacterial pathogens.

This project is funded through a grant from the National Institutes of Health (NIH), titled "Optimization, Manufacturing and Testing of a Lead Therapeutic Bacteriophage Cocktail for the Treatment of Antibiotic-Resistant *Klebsiella pneumoniae* Infections" (project number 1R01AI176546).

[About J. Craig Venter Institute](#)

The J. Craig Venter Institute (JCVI) is a not-for-profit research institute in Rockville, Maryland and La Jolla, California dedicated to the advancement of the science of genomics; the understanding of its implications for society; and communication of those results to the scientific community, the public, and policymakers. Founded by J. Craig Venter, Ph.D., the JCVI is home to approximately

120 scientists and staff with expertise in human and evolutionary biology, genetics, bioinformatics/informatics, information technology, high-throughput DNA sequencing, genomic and environmental policy research, and public education in science and science policy. The JCVI is a 501(c)(3) organization. For additional information, please visit www.jcvi.org.

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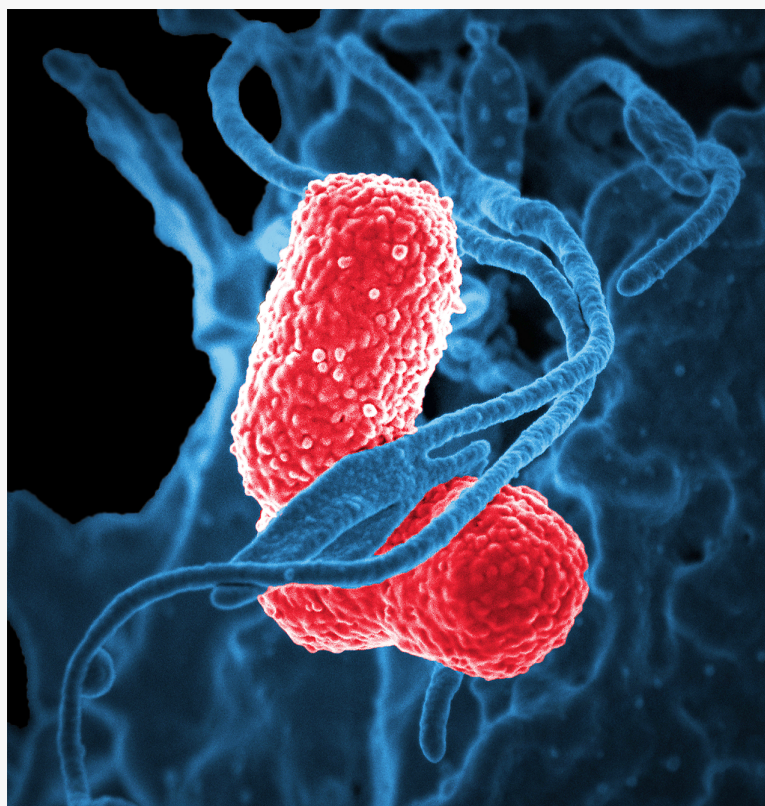


Image depicts a blue-colored human white blood cell interacting with two pink-colored, multidrug-resistant (MDR), *Klebsiella pneumoniae* bacteria, which are known to cause severe hospital acquired, nosocomial infections. Image: David Dorward, Ph.D./NIAID

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