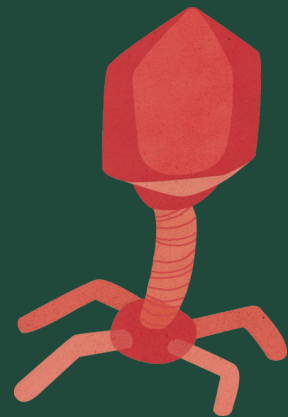


AUGUST 2024



UNIVERSITY OF LEICESTER
CENTRE FOR PHAGE RESEARCH

Project Proposal



PRESENTED TO:

11th Hour Project
The Schmidt Family
Foundation

PRESENTED BY:

Dr. Martha Clokie
University of
Leicester

Combatting Antimicrobial Resistance with Phage



"If we don't control and mitigate Antimicrobial Resistance, it will kill more people before climate change does."

-PROFESSOR DAME SALLY DAVIES

After decades of antibiotic overuse in people, plants, and animals, the rise of **Antimicrobial Resistance (AMR)** is now **destroying human health, agriculture, and the environment**. AMR puts healthcare systems, food systems, ecosystems, and economies in danger. The World Health Organization reports that by 2050, 10 million people will die annually from AMR and \$100 trillion in global capital will be lost. The UN Food and Agriculture Organization estimates AMR will force 24 million more farmers into extreme poverty in just 10 years. Experts are now calling the issue "more acute" than climate change.

To combat AMR, researchers are reviving **phage therapy**, an alternative to antibiotics that uses naturally occurring viruses called phages to treat bacterial infections. In phage therapy, viruses tailored to specific bacteria are found in the field, characterized in the lab, and delivered to the patient, plant, or animal, where they then infect and kill the bacteria without harming any other cells. The practice has been around for over a century, but

research and funding significantly dwindled once methods to commercially mass-produce antibiotics were developed in the 1940s.

Phages can treat multidrug-resistant bacteria while producing fewer side effects and environmental pollutants. That also means cleaner water, healthier soil, and happier animals. It's an **evidence-based, equitable, and sustainable solution** with the potential to save millions of lives worldwide.

The Centre for Phage Research is a global leader in phage science, led by world-renowned microbiologist **Dr. Martha Clokie**.

Help us tackle one of the biggest global health, food, and environmental challenges of our time.



About the Centre for Phage Research



THE LAB: The Centre for Phage Research is using phage therapy to tackle global challenges in **infectious disease, agriculture, food sustainability, and irrigation.**

The team employs genomic, structural, bioinformatic, and AI approaches to develop and deliver phage-based technologies. We have multiple ongoing **clinical trials** to treat patients with antibiotic-resistant infections, as well as numerous **partnerships with farmers** to treat their livestock, poultry, and fish. We also work with **regulators and policymakers** to establish pathways that enable greater access to phage therapeutics.

Our **diverse team** of 30 international experts and trainees includes people like Nzubechukwu Ugokwe, a farm veterinarian from Nigeria who optimizes phages for animal vaccination. Amani Alrashidi from Saudi Arabia uses phage against Salmonella in poultry. Jack Lee from London tests phages in meat packaging to reduce food waste. Sophie Harrison studies phage in patients with chronic obstructive pulmonary disease (COPD). Both our clinical and agricultural research areas are expanding.

THE PLAN: To accommodate the growing global demand for our services, the University has granted us a larger lab space. However, additional funds are necessary to equip our new phage production facility with the state-of-the-art technologies this work requires. Additional personnel are also needed to carry out the next phase of phage production and public health advocacy.

THE ASK: We are looking to raise \$650K to support our research and enable the Centre's relocation and expansion. There is also a naming opportunity available for partners interested in learning more.

The American Friends of the University of Leicester, Inc. (AFUoL), is a charitable 501(c)(3) tax-exempt organization.

LEADERSHIP



Dr. Martha Clokie
Director



Dr. Andrew Millard
Co-Director



Dr. Melissa Haines
Clinical Lead

MORE ABOUT MARTHA

- Professor of Microbiology
- Academic lead of **Phages for Global Health**, a charity that disseminates phage research to low-income countries
- Selected as leading phage expert on a recent **World Health Organization** delegation
- Recently cited in the first **UK Government Phage Inquiry**
- Regularly featured in news, media, and **BBC programming**

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