

Facilitating Phage Applications in Africa and Asia

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Phages for Global Health is a non-profit organization that facilitates the application of antibacterial phage technology in Africa and Asia. We focus in those regions because approximately 90% of the worldwide deaths from AMR are expected to occur there, and phages are untapped tools that could help combat that crisis. Our projects are implemented through partnerships with over 60 collaborators* from more than 30 countries, including colleagues in Europe, North America, South America and Australia/Oceania, in addition to those in Africa and Asia. The four main pillars of our work include:

(1) Capacity Building

Since 2017 we have delivered 5 workshops for scientists in East Africa, West Africa and Southeast Asia, teaching the essentials of phage isolation and characterization, as well as how phages might be utilized to kill antibiotic-resistant bacteria in people, animals, crops and aquaculture. The initial 93 workshop participants have since:

- Trained >1200 other scientists through their home institutions
- Initiated >50 phage product development projects
- Raised >\$1.5 million to support their phage work

(2) Product Development Projects

With funding from governments and private foundations in Europe and the US, we have brought together international, multidisciplinary teams to develop the following products:

- *Salmonella* innolysins: phage-derived endolysins fused with receptor-binding proteins to enhance membrane penetration and killing of these gram-negative bacteria
- *Mycobacterium ulcerans* phages for the treatment Buruli ulcer, a neglected tropical skin disease
- *Vibrio* phages for preventing transmission of cholera between family members, thereby minimizing the spread of outbreaks
- *Campylobacter* phages for poultry meat decontamination

(3) Regulatory Systems

As part of a 2023-2024 Fulbright Global Scholar project, Dr. Tobi Nagel is meeting with national leaders in Kenya, Malaysia and Uganda to share how phage-based drugs are being regulated in Europe, North America and Australia/Oceania and brainstorm about how phages might be regulated in Africa and Asia.

(4) Phage Bank Guidelines

We are leading a global consortium of phage experts who are developing guidelines on how phage banks might be curated and maintained so as to expedite sharing of phages across international borders.

* Too many collaborators to list here, but available upon request