

Australia to create biobank of different phages for killing superbugs

25 May 2023 | News

'Bioprospecting' uncovers viruses that can kill deadly superbugs



In a modern take on the Victorian gold rush, a Monash University-led project is successfully 'bioprospecting' for viruses known as phages that can kill deadly superbugs. The Monash Biomedicine Discovery Institute (BDI) team, led by Dr Rhys Dunstan and Professor Trevor Lithgow of the Bacterial Cell Biology Laboratory, has had some success in tracking down the elusive killers.

Published in *Cell Reports*, their research sheds new light on how phages can select a 'superbug' bacterium that they will kill while ignoring other bacteria that are good for our health. The findings could lead to an improvement in how individual phages are chosen to treat bacterial infections resistant to antibiotics.

Antimicrobial resistance (AMR) is a global issue, with an estimated five million deaths globally in 2019, a number which continues to climb. Australia-based Monash University's Centre to Impact AMR runs several superbug surveillance programmes that are bioprospecting for phages that kill drug-resistant superbugs. They aim to pinpoint phages that can kill specific superbugs and use them to develop treatments.

Bacteriophages are the most abundant biological entities on Earth, with an estimated number that is greater than every other organism, including bacteria, combined. Selecting the right one to treat a given infection is not easy.

In the latest study, Dr Dunstan surveyed waste-water at Addenbrooke's Hospital in Cambridge UK for phages that can kill a deadly variant of the bacterial superbug *Klebsiella pneumoniae*.

"One of our aims is to create a biobank of different phages that can kill *Klebsiella* superbugs. Understanding how these phages kill *Klebsiella* will allow us to better optimise their use as potential treatments", said the researchers.