Discovering a Bacteriophage

Mohammadi, Melina (School: Treasure Valley Math and Science Center)

Each year in the U.S.A., more than 2 million people become infected with bacteria that are resistant to antibiotics. At least 23,000 people die annually as a direct result of these infections. Bacteriophages are recently discovered viruses that specialize in identifying a specific type of bacteria, using it as a host, and destroying it. Bacteriophages can be found anywhere other living organisms exist, and they are a potential path for solving the antibiotic resistance problem. This study focused on determining whether a previously undiscovered bacteriophage could be identified, isolated, and imaged from a soil sample taken from a local compost pile. This research grants scientists the ability to target specific bacteria that would likely be the source of infection in certain locations. The procedure included obtaining a soil sample from a compost bin, which was enriched with nutrient broth and Gordonia terrae. Samples of the enrichment were plated until plaques were visible. These plaques were isolated and purified, resulting in a titre of 3 to 6 billion plaque forming units per milliliter. The phage was imaged using a transmission electron microscope. The final product is a newly discovered bacteriophage, Farinima, that is capable of lysing Gordonia terrae.

Awards Won: