Biowarfare: How Do Bacteriophage Viruses Lyse Bacterial Cells?

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Bacteriophages pierce the outer coats of the bacteria and inject them with phage DNA. The DNA take over the inner machinery of the bacterial cells and force them to make copies of the phage. Then, the bacterial cells break apart, releasing new phage and ridding the soil of harmful bacteria. The fact that phage can kill bacteria has led to the suggestion that phage could be used to fight human bacterial infections. In this science project, this scientist is testing how phage infection can destroy bacteria and prevent the use of antibiotics. The procedure used in this experiment involved transferring E.coli B into increasingly smaller dilutions of bacteriophage to test its effectiveness. Results showed that the 10^-6 Petri dish, which contained the most amount of dilution of the T4r bacteriophage, had the lowest the number of colonies, with 0 colonies after this scientist observed each dish for 7 days. On the other hand, the 10^-10 Petri dish had the most colonies, with 8-10 small colonies. Since the control Petri dish contained no bacteriophage to lyse the E.coli, it had over 20 colonies. The findings of this experiment showed that bacteriophages, like the T4r, can be useful to society by effectively lysing harmful bacteria and reducing the number of colonies present. These viruses attack and eliminate harmful bacteria, wiping out common E.coli infections found in food and soil. In return, many of these applications are helpful in the medical field, where infections are a major source of danger and illness.

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