The Effect of Bacteriophage T4 on Escherichia Coli Biofilm Formation, Stability, & Cell Viability

Alison Reyes Merced '24, Jessica Monasir '24, Sara Harper Roche & Adam Houlihan, Biology

Biofilms are communities of bacteria embedded within a self-produced matrix. They are responsible for biofouling of engineered surfaces and water systems. Thus, it is imperative to find ways to eradicate these highly resistant bacterial communities that are not detrimental to the environment. Our research aims to answer the question of whether bacteriophages (viruses that infect bacteria), alone and in combination with the nonionic surfactant Tween 80, are capable of inhibiting or disrupting Escherichia coli biofilms. We will do this by growing E. coli biofilm and targeting it with bacteriophage T4. Our first round of treatment will measure the effect of T4 bacteriophage alone. Our second round of treatment will include T4 bacteriophage in combination with Tween 80, which is known to disrupt biofilm matrices, to assess synergistic effects on biofilm structure and E. coli cell viability.