1163-34-844 **Selenne Baneulos**, **Hayriye Gulbudak**, **Mary Ann Horn**, **Qimin Huang**, **Aadrita Nandi*** (aadrita.nandi5@gmail.com), **Hwayeon Rye** and **Rebecca Segal**. *Evaluating the effect of immune system on the efficacy of phage therapy in combination with antibiotic for multi-drug resistant bacteria.*

Antimicrobial resistance is one of the biggest concerns of global health. Bacteria and fungi can change themselves to defeat antimicrobial drugs which aim to kill them. With time, overuse of antibiotic is accelerating the spread of antimicrobial resistance. Only in US, 2 million infections and 23,000 deaths are reported every year according to CDC. Research suggests that the phage therapy has the potential to be used to treat multi-drug resistant bacteria. Bacteriophage is administered to infect and lysis the bacteria in phage therapy. We have modeled an ODE system to investigate the effect of immune system on combination treatment of the phage and antibiotic. Our result shows the frequency and concentration of dose as well as the timing of phage administration are important factors of the combination phage therapy. (Received September 13, 2020)