



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Rhea Sharma	Project Number J1610
Project Title Germ Warfare	
<p style="text-align: center;">Abstract</p> <p>Objectives The goal of my project was to see if exposing consecutive generations of Eschericia Coli (E. Coli) bacteria to antibiotics would affect their level of resistance.</p> <p>Methods Materials: E. Coli strain from a hospital lab, Vitek2 Machine (to check for antibiotic resistance), and various antibiotic discs (Cefazolin, Levofloxacin, Gentamicin, Ciprofloxacin). Methods: In a microbiology laboratory, I used the Vitek2 to test which antibiotics the bacteria were susceptible to. Then I grew them on a plate and measured how close to the antibiotic disc they were able to grow. I repeated this once per day for 7 days. At the end, I repeated antibiotic susceptibility testing.</p> <p>Results From Day 1 to Day 7, the bacteria were able to grow closer to the antibiotic disc in 4 out of 4 of the antibiotics tested. Antibiotic susceptibility testing in the Vitek2 showed on Day 1 the bacteria was susceptible to all antibiotics, and on Day 7 it was resistant to the antibiotics I was using as well as to antibiotics I was not testing for in my experiment.</p> <p>Conclusions The bacteria were able to grow closer to the antibiotic disc meaning they were able to tolerate a higher concentration of antibiotic and survive. The Vitek2 test showed the bacteria were resistant to certain antibiotics. Thus, it is important to use antibiotics in a responsible manner to help avoid resistance.</p>	
Summary Statement I measured how close to an antibiotic disc bacterial colonies were able to grow over consecutive generations.	
Help Received I had help from the Bakersfield Heart Hospital Lab, and Awa Chalabi, a lab technician.	