



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Austin K. Ha	Project Number 31522
Project Title Antibiotics: The E. coli Kryptonite	
Objectives/Goals The objective of this experiment was to find what types of surfaces E. coli can grow resistant to Kanamycin in. My hypothesis was that the E. coli could grow resistant to Kanamycin in the Rabbit Dung and Luria Broth agar, but would not be able to grow resistant to Kanamycin in Nutrient, Photobacterium, Cornmeal-Glucose-Yeast, or Tryptic Soy agar.	
Abstract The objective of this experiment was to find what types of surfaces E. coli can grow resistant to Kanamycin in. My hypothesis was that the E. coli could grow resistant to Kanamycin in the Rabbit Dung and Luria Broth agar, but would not be able to grow resistant to Kanamycin in Nutrient, Photobacterium, Cornmeal-Glucose-Yeast, or Tryptic Soy agar.	
Methods/Materials Premade Petri dishes of different variations were ordered. Sterile swabs were used to transfer E. coli from a tube slant onto the agar in the Petri dishes. A Kanamycin disc was placed one in each of 60 dishes. The dishes were incubated and the growth of the bacteria was measured and recorded every other day for 15 days.	
Results In the resulting averages, only the E. coli from inside the dishes containing Tryptic Soy was able to grow resistant (within 10 mm of) to the antibiotic. The bacteria was able to grow as close as 8.91 mm to the Kanamycin disc in the Tryptic Soy agar, as close as 12.11 in the Rabbit Dung agar, as close as 12.15 in the Luria Broth agar, as close as 14.23 in the Photobacterium agar, as close as 14.40 in the Cornmeal-Glucose-Yeast agar, and as close as 15.80 in the Nutrient Agar.	
Conclusions/Discussion The main hypothesis was that the E. coli could grow resistant to Kanamycin in Rabbit Dung and Luria Broth agar, but not in Nutrient, Photobacterium, Cornmeal-Glucose-Yeast, or Tryptic Soy agar. The bacteria was able to grow resistant to Kanamycin only in Tryptic Soy, refuting my hypothesis. My experiment shows how dangerous E. coli can be to humans and animals since it can grow resistant to different types of antibiotics, and also how antibiotic resistance can become dangerous.	
Summary Statement My project tested the ability of the bacteria E. coli to grow resistant to the antibiotic Kanamycin on different surfaces, revealing how different environments affect the growth of the bacteria.	
Help Received Dad helped me buy all of my supplies, helped me create an incubator for the bacteria to live in, helped me to properly dispose of the Petri dishes, and helped me design the graphs.; Mom supplied me with tape and helped me to cut construction paper for the board.; Mrs. Patel guided me through the whole process.	