



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> Alec Rupp; Ariana Rupp	<b>Project Number</b> <b>J1519</b>
<b>Project Title</b> <b>Do Sunglasses Sold at Retail Stores Harbor Microorganisms That Are Resistant to Commonly Prescribed Ocular Antibiotics?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To determine if sunglasses sold at retail stores harbor microorganisms. To evaluate the effectiveness of 5 commonly prescribed ocular antibiotics against 8 of the bacterial isolates cultured from the sunglasses.</p> <p><b>Methods/Materials</b> The nose bridges of 9 pairs of sunglasses from Macy's and 6 pairs of sunglasses from Guess were swabbed with a sterile swab moistened with sterile phosphate buffered saline. The swabs were then used to inoculate the surfaces of sterile tryptic soy agar plates. Plates were incubated at ambient room temperature for 7 days. At the end of incubation the numbers of microorganisms were counted. Antimicrobial susceptibility testing was performed using representative bacterial isolates. Antibiotic disks were prepared using ophthalmic solutions containing gatifloxacin, gentamicin, tobramycin, moxifloxacin and trimethoprim/polymyxin B. Disks were placed onto the surfaces of tryptic soy agar plates previously inoculated with bacteria. Plates were incubated at ambient room temperature for 7 days to produce bacterial lawns. Clearing around the disks indicated that antibiotics prevented growth. The clearing produced circular zones which could then be measured and recorded.</p> <p><b>Results</b> Bacteria and mold were isolated from approximately 93% (14/15) of the sunglasses. Different degrees of susceptibility were displayed by the different bacteria. Three of the eight bacterial isolates (37.5%) tested were not susceptible to one or more antibiotic.</p> <p><b>Conclusions/Discussion</b> Customers should take precaution when trying on sunglasses since they could have been handled by customers who have infections. Antibiotic resistant bacteria recovered from sunglasses could pose a risk to some patients requiring sunglasses after surgery.</p>	
<b>Summary Statement</b> We evaluated the effectiveness of commonly prescribed ocular antibiotics against bacteria isolated from sunglasses sold at retail stores.	
<b>Help Received</b> Received support and guidance from our teacher, Mrs. Donna Harbison, and from our parents.	