



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) <p align="center">Sabrina P. Chan</p>	Project Number <p align="right">34431</p>
Project Title <p align="center">Are Your Eyes Safe? The Efficiency of Contact Lens Solutions</p>	
<p align="center">Abstract</p> <p>Objectives/Goals The objective of this experiment is to observe whether contact solutions kill bacteria on contact lenses after one wash. It is hoped that through this experiment, one contact solution will be more effective than the two others. The goal of this experiment is to find growth on the control half of each plate and a low amount of growth on the solution halves.</p> <p>Methods/Materials For this experiment, the Bausch and Lomb Renu Fresh solution, Complete by AMO multipurpose solution, and Opti-Free Replenish multipurpose solution will be tested to kill bacteria from 3 live subjects who wear contact lenses. The three subjects will place their worn contact lenses into one vial filled with a solution and another filled with sterile water (control). After receiving the vials from the subjects, the solutions from the vials will be repeatedly smeared onto a tryptic soy agar plate 4 times using a sterile cotton swab. A total of 45 tryptic soy agar plates will be required. One half will be smeared with the contact solution and the other with the control. After inoculating the plates, they will be placed into an incubator set to 37 degrees Celcius for 72 hours. The results will be recorded and the entire process will be repeated 3 times in order for each subject to use each solution once.</p> <p>Results The Bausch and Lomb Renu Fresh solution killed 99.9% of the bacteria on subject 1#s contact lens, and 100% of the bacteria on subject 2 and 3#s. The Complete by AMO multipurpose solution killed 100% of bacteria from subject 1#s lens, 97% from subject 2, and 99.9% from subject 3. The Opti-Free Replenish multipurpose solution killed 100% of the bacteria on every subject#s contact lens.</p> <p>Conclusions/Discussion In conclusion, contact solutions do kill bacteria from contact lenses and they are vital to keep the human eyes healthy. Throughout all of the trials the Bausch and Lomb Renu Fresh solution and the Complete by AMO multipurpose solution killed 99.9% of the bacteria, and the Opti-Free Replenish multipurpose solution eliminated 100%. The many people who wear contact lenses receive infections and are concerned about finding the right solution. From the conclusions of this experiment, people who are concerned to risk their eye health can see which contact solution was the most efficient throughout the testing.</p>	
Summary Statement <p>This project tests the effectiveness of different commercially-found, multipurpose contact lens solutions.</p>	
Help Received <p>Used lab equipment at Axkin Pharmaceuticals under the supervision of Dr. Tai Wei Ly</p>	