



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Bronte N. Brazier	Project Number S1605
Project Title Azithromycin in Combination with Hamamelitannin as a Growth Inhibitor for Common Bacteria in Surgical Site Infection	
Abstract Objectives/Goals The objective of this study is to see both the individual and synergistic antimicrobial effect of Azithromycin and Hamamelitannin on common bacteria in Surgical Site Infection. The bacteria labelled responsible for these infections include Staphylococcus aureus, Pseudomonas aeruginosa, and Escherichia coli. Methods/Materials The Kirby-Bauer diffusion assay was used to see growth inhibition caused by both antibiotics at different concentrations combined and individually against S. epidermidis. Results The results indicate that by combining 1.0 micrograms Azithromycin/ mL H ₂ O and 10 micrograms Hamamelitannin/ mL H ₂ O, the growth of S. Epidermidis can be inhibited 25% or more effectively than either antibiotic at any concentration individually. Conclusions/Discussion This study shows that the combination of Azithromycin and Hamamelitannin can effectively prevent Staphylococcal infection. It also suggests that the combined antibiotic has the potential to contribute to the treatment and prevention of Surgical Site Infection. Note: For the County Fair I only had time to run the antibiotic against Staphylococcus epidermidis, however for State the process was repeated with the other three.	
Summary Statement This study shows both the individual and synergistic antimicrobial effect of Azithromycin and Hamamelitannin against common bacteria in surgical site infection.	
Help Received I conducted and designed my experiment individually, however, I was given advice on lab technique and sterility by my AP Research teachers and peers. My State experiment was completed at CSUCI, where I learned how college labs are organized and received advice for efficiency in the lab.	