



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Klara J. Chang	Project Number J2006
Project Title Ultraviolet Light vs. Bacteria on Toothbrush	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective is to see how long it takes for an ultraviolet light sanitizer to kill more than 99% of bacteria on a toothbrush. Based on my research, longer exposure should result in more bacteria killed.</p> <p>Methods/Materials Four toothbrushes inoculated with similar amount of bacteria from my tongue were tested in the same UV sanitizer. Three of the toothbrushes were exposed to UV light, each for a different amount of time, while the fourth toothbrush, not exposed to the UV light, was used as the control. Afterwards, the remaining bacteria on the toothbrushes were transferred to a growth medium and the bacteria were grown for a specific amount of time before plating, so the number of bacterial colonies could be counted.</p> <p>Results The results of my experiments were consistent with my hypothesis. However, to kill more than 99% of bacteria, at least thirty minutes were required.</p> <p>Conclusions/Discussion My hypothesis was correct. Thirty minutes had the most effect on killing the bacteria. This would help in the real world by showing people the large amount of bacteria in their mouths that need to be cleaned. It also demonstrates a method of killing the bacteria left on the toothbrush.</p>	
Summary Statement My project is about how long it takes for an ultraviolet light sanitizer to kill 99% of bacteria on a toothbrush.	
Help Received Amgen provided supplies for the experiment; Mother helped conduct experiment; Parents helped put together the project board; Teacher edited my research papers.	