



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Julia M. Dendle	Project Number J1307
Project Title Antibacterial Products: Do They Work, and Is This a Good Thing?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Experiments were performed to determine whether or not antibacterial products are actually any better than regular cleaning agents at eliminating bacteria. Today, products that claim they are antibacterial are being accepted into healthy households. Supposedly, the antibacterial products are better at inhibiting growth, but may be spreading resistant bacteria. Fifteen antibacterial products and fifteen products that do not claim they are antibacterial were compared for better performance in the inhibition of <i>E. coli</i> bacteria.</p> <p>Methods/Materials To test the performance level, the products were plated and incubated overnight. <i>E. coli</i> bacteria were exposed to the plates. One product was then chosen from each group and diluted. The antibacterial product was serially diluted by hundredths and thousandths. The non-antibacterial product was diluted by hundredths. <i>E. coli</i> bacteria were pipetted into the dilutions to compare performance when diluted. The bacteria that continued to grow were plated on antibiotics.</p> <p>Results Antibacterial products are more consistent in the inhibition of <i>E. coli</i> bacterial growth than non-antibacterial products. Significant growth did not immediately appear until the dilution was 1:3200. However, the growth was condensed in a string-like substance, so spectrophotometer readings were not as accurate as possible. Because resistance sometimes takes a longer period of time to establish, no bacterial resistance appeared. Even though the antibacterial product performance may seem to be good, it may be lowering human tolerance levels towards certain bacteria due to lack of exposure.</p> <p>Conclusions/Discussion Antibacterial products are more efficient in the inhibition of bacterial growth of <i>E. coli</i>. They also show no immediate bacterial resistance.</p>	
Summary Statement Antibacterial products may or may not be more effective than products that are not specified as being antibacterial, and may promote the development of resistant bacteria.	
Help Received My mother and her coworker, Dr. Patrick Braun, advised me on my project, and Dr. Jeff Kelly allowed me to use his lab equipment at the Scripps Research Institute.	