



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Sage A. Strieker	Project Number J2018
Project Title Put the Fire Out: Choose an Antacid That Stops Your Heartburn	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective was to design a system that would help people decide which antacid to take when they suffer from occasional heartburn. To do this, I created a six-step system for evaluating overall antacid quality, and I tested it on six antacids. On the basis of my research, I thought that Tums, which contains calcium carbonate as its only active ingredient, would rank highest in overall antacid quality.</p> <p>Methods/Materials Two separate criteria determined overall antacid quality: the average speed of action of an antacid and the lowest average effective portion of its recommended dose. I created simulated gastric juices and used them to test the six antacids in these two areas. Next, I assigned each antacid two performance numbers: one for the speed and one for the dosage. Finally, for each antacid, I added the two numbers and ranked the antacids according to the totals. This was my ranking of the antacids for overall quality.</p> <p>Results For overall quality, Tums ranked first; Walgreens Original Antacid Tablets ranked second; Di-Gel, Gaviscon, and Gelusil tied for third; and Brioschi ranked fourth. For average speed of action, Tums ranked first, Walgreens ranked second, Gaviscon ranked third, Di-Gel ranked fourth, Gelusil ranked fifth, and Brioschi ranked sixth. Tums and Walgreens tied for the lowest average effective portion of the recommended dose. They were followed by Gelusil, Di-Gel, Gaviscon, and Brioschi, in order.</p> <p>Conclusions/Discussion Each antacid contained one or more of four main active ingredients, which, I believe, influenced my results. Tums, with calcium carbonate only, had the highest overall quality, which confirmed my hypothesis. Next was calcium carbonate with magnesium hydroxide (Walgreens), aluminum hydroxide with magnesium hydroxide (Gaviscon, Di-Gel, and Gelusil), and sodium bicarbonate (Brioschi). Since the antacids performed so differently in the two areas, it might be helpful to expand this system by including more factors that people consider when they buy antacids.</p>	
Summary Statement In my project, I designed a system to help people suffering from occasional heartburn to choose the antacid that is best for them.	
Help Received Nick explained pH meter. Mike and Ron helped with large images for display board. Mother shopped, helped prepare items for display board, proofread, diluted pH Down with water, ran stopwatch. Aunt helped with proofreading, editing, and formatting report.	