



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Gabriel M. Glasser	Project Number S0406
Project Title Which Antacid Is the Most Effective Acid Neutralizer?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Test to see which antacid stops acid buildup the best by measuring the percent change of egg white mass in an environment with the enzyme pepsin and hydrochloric acid, similar to that found in the stomach, over a 24 hour timeframe. Determine if any acid can essentially stop acid buildup altogether. My hypothesis is that the strongest antacid will be the one that is able to denature the enzyme pepsin and causing pepsin to have the weakest effect.</p> <p>Methods/Materials Each test tube contained approximately one gram egg white with 5mL of 1% pepsin. Nine test tubes included 2.0g (or mL) of an antacid (Rolaids, Tums, Mylanta, Pepto-Bismol, Alka-seltzer, Brioschi, Gelusil, and Prilosec) with 5mL 0.1M hydrochloric acid. One test tube contained 5mL 0.1M hydrochloric acid. The last contained 5mL of distilled water. The test tubes contained these components for 24 hours. There were beginning and ending pH values and egg white masses for each test tube trial.</p> <p>Results The groups from least change to most change in egg white mass: Water, Alka-seltzer, Rolaids, Pepto-Bismol, Mylanta, Gelusil, Tums, Maalox, Brioschi, Prilosec, 0.1M HCl. The groups from highest to lowest pH values: Alka-seltzer, Rolaids, Gelusil and Mylanta, Tums, Maalox, Brioschi and Water, Pepto-Bismol, Prilosec, and 0.1M HCl.</p> <p>Conclusions/Discussion The ending pH was inversely proportional to the change in egg white mass. This is because, the higher the pH the more pepsin was denatured and could no longer hydrolyze the egg white protein. The stronger antacids had more hydroxide ions to disassociate in the solution.</p>	
Summary Statement My project tested different antacids, their effects on pH of the stomach, and pepsin's ability to hydrolyze protein.	
Help Received Mom and Dad funded the project and transported me as needed, Mom helped me boil eggs; Science teachers loaned me equipment and assisted in either providing or helping me purchase chemicals; a Professor of Biology answered questions on data collection & pepsin concentration.	