



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Austin G. Bathgate	Project Number J1703
Project Title How Does Pain Medication Affect Your Liver?	
Abstract Objectives/Goals To determine if and what effects the commonly used pain relievers, acetaminophen, ibuprofen, and aspirin have on beef liver cells. Methods/Materials Materials: beef liver from the grocery store, acetaminophen, ibuprofen, aspirin, saline (.9% NaCl), test tubes, beakers, pipettes, microscope, microscope slides, slide covers, methylene blue, test tube holder, camera, computer. Methods: I mixed each of the medicines with saline, and let it sit for a day to dissolve at room temperature. Then I mixed small pieces of beef liver with the saline to make a cell solution. Next I placed the medicine solution and cells in a test tube and let it sit for ten days. After 10 days I looked at the solution under a microscope at 40X using methylene blue stain. I looked at the damage to the cells. Then I took pictures of the cells. Results After performing my experiment, I saw that aspirin barely damages the liver cells compared to acetaminophen and ibuprofen. The acetaminophen and ibuprofen damage the cell's membrane with the ibuprofen doing the most damage. Conclusions/Discussion After completing my experiment, I would not recommend taking acetaminophen or ibuprofen because it damages the liver cells. I would recommend taking aspirin since it does little damage to the cells.	
Summary Statement My project is to show the effects of acetaminophen, aspirin, and ibuprofen on the liver.	
Help Received Used microscope at Rancho Christian School under supervision of Mrs. Wight	