



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Amisha P. Patel	Project Number S0414
Project Title Effects of Ethanol on Beta-Hexosaminidase	
Abstract Objectives/Goals The objective of conducting this experiment is to figure out if ethanol has any effects on the RBL (rat basophilic Leukemia) cell's secretion level of beta-hexosaminidase. The RBL cells are similar to those of the human mast cells. Mast cells are cells, which contain several types of tissues that contain many particles rich in histamines. Their main function is playing a protective role as well as healing wounds. Thus, after testing the ethanol concentrations on the RBL cell, we will find out if it does or doesn't have an effect on the cell. Methods/Materials I cultured the RBL cells in the media into a 96-well plate. Using pipettes, I released ethanol and media into the cells. I then placed it into the Centro-fill machine to allow all the cells to sink to the bottom. After shaking out the extra media from the plate, I added a buffer solution $\text{NaHCO}_3/\text{Na}_2\text{CO}_3$ (changes the color: darker the color=more enzymes present.). Then I placed the 96-well into a plate reader which allowed me to calculate the results of how much beta-hexosaminidase was actually released from the cell. Results 0% of ethanol was used as the control. At 0.01% the average amount of beta-hex (enzyme) present was approximately 8%. For .10% ethanol concentration level, 9% of the enzyme was present in the cell. At 1% ethanol concentration level, 11% of the enzyme was present in the RBL cell. Conclusions/Discussion One can conclude that the greater the ethanol concentration level, the less functional the cell will be. The higher the ethanol concentration level, the more it disrupts the mast cell production. This means that ethanol slows down the process of healing wound and defending itself against pathogens.	
Summary Statement The objective of this experiment was to find out if ethanol had any effect on human mast cells.	
Help Received Used lab equipment at UCD, under the supervision of a graduate student.	