



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Katherine C. Nagasawa	Project Number J1426
Project Title Tylenol 911: Live or Liver?	
Objectives/Goals Problem Statement: What other anti-oxidants will help reduce/eliminate N-actyl-p-aminobenzoquinoneimine (NAPQI)? Hypothesis: I hypothesize that anti-oxidants such as Glutathione will be better than Vitamin C or N-acetyl cysteine (NAC). I plan to try Vitamin C, Co-enzyme Q10 (Co-Q10), NAC, Glutathione, and Cysteine.	
Abstract Methods/Materials Materials: Acetaminophen NAC Glutathione Vitamin C Co-Q10 Saran Wrap Baking Soda L-Cysteine Beakers Flasks Pipettes Vials, capped Metal spatula Eye goggles Plastic gloves Procedure: Set up equipment and put on safety goggles and gloves Create NAPQI by mixing hydrogen peroxide, acetaminophen , and baking soda together Divide the created NAPQI into 3 vials Put Cysteine into one of the vials, GSH into another, and NAC into the last vial Stir each solution and observe for yellow color indicating reduced product in each one	
Results Results: I was looking for the quenching of the yellow color when I added the different anti-oxidants. My experiments indicated that NAC was slightly superior to GSH whereas L-Cysteine gave a bizarre reaction.	
Conclusions/Discussion Conclusion: In my model, it would appear that NAC might be the best compound to use in an emergency with an overdose of Tylenol.	
Summary Statement Testing several anti-oxidants in a model system to see if they could reduce the toxic metabolite of Tylenol (NAPQI) which can cause liver damage.	
Help Received Grandfather ordered chemicals	