



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Erin Campbell; Nicole Lang	Project Number J1407
Project Title Amazing Discovery: The Toxic Effects of Yellow Dye #5 on Mice	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals We sought to find out if a common food additive deemed safe by the food industry & the U.S. Food and Drug Administration, yet banned in other countries is harmful to the health & mental functioning of mice and if so, to raise the question if people consuming it may be at risk from it as well. If yellow #5 dye or coal-derived tartrazine has significant effects on mice, we must consider what the effects are on children & pregnant women around the world who consume tartrazine every day.</p> <p>Methods/Materials</p> <p>METHODS A first control maze run was done with both groups receiving regular food and water. Group B received 5% tartrazine in their water for the 2nd and third runs while Group A did not. Times were recorded and factored after each run. We concluded the maze runs after the third run because of many unexpected adverse health affects with those that received the tartrazine.</p> <p>MATERIALS 20 Mice, a timer, a maze, two cages, exercise wheels, & water bottles, yellow dye #5 or tartrazine, mouse food, and science fair journals</p> <p>Results The male mice that received yellow dye were 3.5 times slower in their times through a maze they had previously been through than the non-receivers and we found that the tartrazine affected the mice in many more significant ways than we expected. The majority of the dye mice developed hair loss, long-term or chronic diarrhea, inflamed, swollen, or bleeding rectums, reduced growth and development, and possible reproductive impairments. Two of the youngest dye-receiving male mice died from this regulated and assumed safe food dye.</p> <p>Conclusions/Discussion While the maze runs showed some interesting potential effects of dye on memory & cognitive function, the most unexpected and frightening results were about how the dye so severely affected the health of the receiver mice. If these health risks exist in mice exposed for only three weeks to this presumed safe dye, how might it be affecting expectant mothers as well as children who consume it daily throughout their childhoods? We plan to send this study to the largest food corporations using tartrazine in products marketed to children, the FDA, and two groups pursuing a U.S. legislative ban of the use of tartrazine in foods.</p>	
Summary Statement Demonstrating the toxic effects of the food additive yellow dye #5 on the health and mental functioning of mice.	
Help Received Nicole's father, Michael helped with making the mazes & running the mice, and Erin's parents helped with the graphs and mathematics.	