



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Lauren M. Hinkley	Project Number S0512
Project Title Correlation between p53 Protein and Cancer Susceptibility in Different Species	
Abstract Objectives/Goals The objective is to determine if there is a correlation between the amino acid sequence of the tumor suppressor protein p53 in twelve species and the species' susceptibilities to cancer. Methods/Materials I collected the amino acid sequences for the p53 of the selected twelve species and ran an Alignment to compare them. Then, I ran a test to find their conserved domains and used the E values, or the statistical significance, of each conserved domain in the lowest and highest species to see if they were statistically different. I compared the polar versus non polar amino acids in the highest and lowest susceptibility species. Results There was no statistical difference in the values of the conserved domains. There were many different amino acids that appeared in the higher incidence species than what appeared in the lower incidence species. Conclusions/Discussion Since p53 is so crucial in regulating cell growth and division to prevent cancer in all species, it cannot vary from its functioning form. Therefore, many of the conserved domains remain the same from species to species, which is why there was little statistical difference between them. However, since there were different amino acids in the higher incidence than in the lower incidence species, it suggests that the p53 has evolved to work better in some species than in others, suggesting a biological importance.	
Summary Statement I compared the structure of p53 in different species to see if there was a correlation between the structure of p53 and cancer incidence.	
Help Received Teacher introduced me to different data bases	