



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Chloe B. Warinner	Project Number J0414
Project Title DNA vs. Hair Analysis: Should They Be Admissible in a Court of Law?	
Abstract Objectives/Goals The objective of my experiment was to determine which method is more reliable: forensic DNA analysis or microscopic hair analysis. I wanted to learn whether or not both these methods should be admissible in court and if they are reliable enough to convict a criminal suspect. Methods/Materials I used a Buccal Swab kit to do a PCR reaction, and a microscope for the hair analysis. During the DNA analysis, I took cheek swab samples, ran them in a thermal cycler to multiply them, and then ran a gel to find their length. Finally, I placed the gel under UV light to measure the number of base pairs. During the hair analysis, I took hair samples from 15 individuals and examined under the microscope such as reflectivity, medulla, cortex, and many others. Results I was able to identify 9 out of 15 individuals using hair analysis. With DNA analysis, I could correctly identify all of the "suspects." I determined that people within a certain ethnicity and hair color tend to have similar characteristics which make them hard to discriminate from each other. Conclusions/Discussion When my tests were complete, I concluded that my hypothesis was correct. I could correctly identify 100% of my subjects using DNA, compared to 54% of my subjects during hair analysis. Therefore, hair analysis should not be admissible in court when used as evidence to convict a criminal, but DNA analysis can be relied on as an accurate method of identification.	
Summary Statement My project tested the forensic methods of microscopic hair and DNA analysis to determine if they should be admissible in court.	
Help Received Used lab equipment at UCSB with help from and under supervision of Christine Henzler, post-doc.	