CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)
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Project Number
J0410

Project Title
CSI: San Mateo

Abstract

Objectives/Goals
The objective of my project is to confirm that DNA Fingerprinting can really uncover the perpetrator of a crime. I will see if DNA Fingerprinting can distinguish between very close family members who have similar DNA sequences.

Methods/Materials
As a test, a mock crime scene was created. I extracted DNA from the blood samples of six suspects. The polymerase chain reaction method (PCR) was used to amplify sixteen genetic markers, including the sex identification marker, so they could be detected. The samples were then run on a capillary electrophoresis instrument to separate and detect the DNA fragments. Using software to analyze the data, I was able to see who the criminal was and if my hypothesis was correct.

Results
DNA profiles were obtained from all suspects. Three controls were also executed. The positive control reassured me that the PCR reaction and DNA extractions worked. The no template control and FTA negative control proved that nothing was contaminated.

Conclusions/Discussion
I concluded that DNA Fingerprinting performs very well and can even tell apart family members who have very close DNA patterns. Amazingly, DNA Fingerprinting also enables you to recognize your mother or father so you can prove that they are your real parents.

Summary Statement
My project demonstrates that DNA Fingerprinting can be used to distinguish individuals and family members.

Help Received
Used lab equipment at Applied Biosystems under supervision of my mother, Lori Hennessy.