



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Kamei Triebell	Project Number J1229
Project Title CSI Forensics: Absorbtion and Extraction of DNA from Various Fabrics	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I am interested in forensics. I wanted to find out if DNA might be more difficult to recover from certain fabric types, and I also wanted to see how soaking the fabrics in salt water or washing the fabrics with detergent might affect the amount of DNA recovered. This project evaluated the ability to detect and recover blood stains from various fabric types. A set of eight untreated, blood spotted fabric samples were compared to eight untreated, blood spotted fabric samples were compared to eight soaked in salt water or washed in Tide laundry detergent. It was the assumption for all three sets that 100% cotton (white) would yield the most DNA because cotton is a natural fiber and white cotton does not contain dye. The second assumption was that a 100% polyester fabric sample with gold glitter would yield the least DNA for all three sets of fabric samples tested because the glitter would interfere with the blood adhering to the fabric.</p> <p>Methods/Materials Fabric samples and control element were processed for blood application and isolation of genomic DNA. The procedure consisted of a sample application method, sample treatment, DNA recovery, DNA purification, and a DNA quantitation assay.</p> <p>Results The water submerged set resulted in almost no DNA recovery from each fabric. In the Tide detergent set, of the eight fabrics tested, the 100% cotton with a light print yielded the most DNA with approximately 249 ng recovered, while the 100% polyester with gold glitter recovered less than 1 ng of DNA. In the untreated set, the 100% cotton denim and dry 100% cotton light print recovered the least DNA and retained only approximately 86 ng and 121 ng of DNA respectively.</p> <p>Conclusions/Discussion The results indicated the amount of DNA recovered from the fabric varied according to the condition. For example, when the fabrics were dry, the polyester gold glitter sample allowed for the most DNA recovery. When the gold glitter sample was washed, it yielded the least amount of DNA. The light weight cotton print sample retained the most DNA when washed, but only recovered a moderate amount, compared to other fabrics when dry.</p>	
Summary Statement This project compared recovery of DNA from a variety of bloodstained fabrics under conditions of dry, salt water-soaked, or machine washed, and found that recovery varied dramatically within the same fabric.	
Help Received Father helped type report; Used lab equipment at GenVault Corp. under the supervision of Mrs. Roxanne Hunker	