



Criminalistics Section – 2005

B76 Strategies in Large Volume DNA Analysis of No-Suspect Casework

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The goal of this presentation is to demonstrate to the forensic community the approaches used in large volume DNA analysis of no-suspect casework.

This presentation will impact the forensic community and/or humanity by describing how to process large volume DNA analysis of no-suspect casework.

Analysis for short tandem repeats (STRs) in forensic casework analysis has become popular in the last decade. Further, the results from STRs have been well accepted by the court system. Because of the high power of discrimination of STRs, many States have begun examining earlier forensic case samples, including no-suspect cases for DNA analysis. The desire to process these samples for DNA evidence has overwhelmed the capabilities of most laboratories. As a result, the number of backlog cases have increased in the past few years and generated a need for designing a sample processing system for high throughput. Many government forensic laboratories are now outsourcing their no-suspect rape cases to private laboratories including ReliaGene Technologies, Inc.

The authors have analyzed about 1500 unscreened rape kits. The samples in these kits were screened for the presence of seminal fluid and sperm cells. Approximately 57% of the rape kits had at least one sample that was positive for either seminal fluid and/or sperm cells and 43% were negative for both seminal fluid and sperm. The cases exhibiting samples positive for seminal fluid and/or sperm cells were processed for autosomal STR analysis. In order to process such a high volume of samples, Qiagen's EZ1 and M48 robots were integrated into the system for rapid analysis. Of the 1500 cases investigated, 50% of the cases provided complete profiles. This presentation will discuss different approaches used in the processing of samples from screening to DNA testing.

Casework, DNA, No-Suspect