

CASEWORK AND INDEXING EFFORTS UNDERWAY IN ILLINOIS

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The Illinois State Police began validating STR analysis on the ABI 310 Capillary Electrophoresis instrument using the AmpF/STR Profiler™ Plus Amplification Kit in October 1997. Ten DNA analysts were assigned to this project, five from the Forensic Science Center in Chicago (FSC-C) and five at the R&D laboratory in Springfield. Validation was completed in April 1998 and casework began in May 1998. A massive effort also began in May 1998 to train 50 additional DNA analysts and biologists in STR analysis using the ABI 310 CE. Training was conducted at the FSC-C and the R&D laboratory. Seven analysts were originally assigned to each site. If the analyst had no forensic DNA experience, they were initially trained to practice clean technique and to extract and quantitate DNA. This involved a six-week module that included lectures, practical exams and written exams. Once this module was completed, the analysts were trained in the polymerase chain reaction (PCR) and the operation of the ABI 310 CE instrument and software. This module included lectures, practical exams, written exams, non-probative casework, oral boards and supervised casework. Analysts were required to obtain 100% on all practical exams and a minimum of 80% on all written exams. There are a total of three classes planned for the R&D laboratory and five planned for the FSC-C. Training of all analysts is planned to be completed by August 2001. In July 1999, RFLP will only be conducted on a case by case basis. RFLP is planned to be discontinued by February 2000.

In addition to training DNA analysts for casework, the DNA Indexing Section had to convert the databank from RFLP to the 13 core STR loci. It was decided that this task would be completed in house rather than hiring a contract laboratory. In order to accomplish this, the Rosys® and Hamilton robots were validated along with FTA paper using both the AmpF/STR® Profiler Plus and Cofiler™ PCR Amplification Kits. These validations were completed at the end of June 1999 and the Indexing section began analyzing samples on July 6, 1999. Currently there are 15,000 samples in the databank that were previously analyzed using RFLP. Approximately 150 samples are received each month. By utilizing four ABI 310 CE instruments, the indexing section plans to analyze approximately 1400 convicted offender samples per month. In 2001 the law changes to include additional convicted offender samples such as burglary, robbery, first and second-degree murder and home invasion. Currently, only DNA profiles of those individuals convicted of sex crimes are housed in the databank. It is estimated that the number of blood samples submitted to the databank will increase to 20,000 per year because of this new law.

With the addition of STR analysis to our repertoire we have been able to obtain results on cases where previous DNA analysis had failed, for example, a twenty two-year-old homicide in which no conclusive results were obtained with PolyMarker. The victim was found partially clothed and bludgeoned to death in the field of a sewage treatment plant in Elgin, Illinois. Further investigation led to four Chicago youths that were caught stealing a car battery but upon inspection of their vehicle a large amount of blood and a bloody hammer were found in the back seat. Conventional serological typing was originally conducted on the stains from the car and found to be consistent with approximately 4% of the population. The victim possessed this profile. The case was never prosecuted due to several reasons and in 1996 the evidence was resubmitted for DNA analysis. No conclusive results were obtained at PM loci. The samples were reanalyzed using Profiler™ Plus in 1998 and results were obtained that excluded the victim as having contributed the stain found in the car.