

## LEGAL EXPERIENCES WITH PCR-STR TYPING

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PCR-STR typing descends upon the legal system after what seems like a lifetime of lengthy, acrimonious debate about the reliability of earlier forms of DNA typing. At the present time there are few published appellate decisions concerning any forms of PCR-STR typing. Just as there are two sides to any legal controversy, there are also two possible explanations for the paucity of any published PCR-STR appellate decisions. The first is that this technology is too new to have produced published appellate decisions and the legal admissibility debate must continue. The other is that the earlier acrimonious debate resolved most of the fundamental issues and there is little or no legal need to waste precious resources on further debate.

This presentation will discuss the two explanations along with appellate legal history to date and will analyze these decisions with the goal of suggesting what strategies, legal and scientific, might be developed to enable even newer kit technologies to experience a smooth transition from development to implementation, and finally, to routine reliance in the legal system. Finally, this discussion will demonstrate that the newer forms are well suited to solving some of the thousands of unsolved murder cases whose investigations have lain dormant for lack of interest or laboratory resources.

### **STR LEGAL EXPERIENCE**

To date, there have only been three published appellate decisions concerning PCR-STR typing. In chronological order of decision they are: Commonwealth v. Rosier (Mass. 1997) 685 N.E.2d 739; State v. Jackson (Neb. 1998) 582 N.W.2d 317; Watts v. State 1999 WL 33867 (Miss.). None of these decisions involve the newer forms of PCR-STR typing. In Rosier Cellmark performed DQa, PM, and STR (CTT) typing. In evaluating the challenges to the admissibility of the evidence, the reviewing court relied on earlier admissibility decisions from Massachusetts and elsewhere concerning RFLP typing in deciding that the proffered evidence, including the profile frequency estimates, were admissible. Among other scientific sources the court relied heavily on was the 1996 National Research Council report for the proposition that the use of the product rule was generally accepted. In Jackson, DQa, PM, D1S80, and STR typing were performed by a local pathologist. The opinion does not specify which form of STR typing was utilized. The reviewing court relied on earlier decisions which found both RFLP and DQa typing evidence admissible, even though the evidence was typed using newer forms of DNA typing. This court was as unconcerned with those technical differences as was the Massachusetts reviewing court in Rosier. The third opinion in this series, Watts, utilized an identical approach. GenTest performed DQa, PM, D1S80, and CTT typing. The Mississippi Supreme Court relied on earlier decisions involving other forms of DNA typing to decide that the typing results, including the product rule profile frequency, was admissible.

How do these decisions shed light on how courts should view the newer forms of STR typing currently in use? Novelty of scientific technique has caused courts to take admissibility challenges seriously. However not all novelties spark the kinds of heated challenges seen in the early 1990's. These three opinions all demonstrate that fundamental issues cause concern, not the evolution of a technique previously found to be sound. Each of these courts considered earlier opinions which addressed issues generic to all forms of DNA typing. None of these opinions delved into the specific markers which were used, the "platforms" utilized to type them or the detection technique involved in each. One must read carefully to determine which markers were used in any case- in Jackson, it is unclear from the opinion which markers were used. This legal approach is not new. In responding to challenges to conventional electrophoretic typing, appellate courts rarely described the specific form of typing used in any case, instead addressed generic challenges

to all forms. Similarly, with regard to RFLP typing, details such as gel size or specific probes utilized were almost never mentioned in published appellate admissibility decisions.

In the legal setting, providing a criminal defendant the opportunity to challenge new scientific evidence ensures him that he will be given a fair trial. As the 1990's draw to a close, courts such as those described herein have recognized that forensic DNA typing is the greatest guarantee of a fair trial. This sentiment was echoed in the 1996 NRC report which encouraged defendants to re-test evidence in cases where the validity of the results are questioned. Except in few jurisdictions, the time for contentious debate has ended.

### **APPROACHING UNSOLVED MURDERS**

Using currently available PCR-STR techniques, the full power of DNA typing can now be brought against deserving violent criminals who commit new offenses. However, there are many thousands of unsolved homicides and other crimes which might be solved if they were to be re-evaluated for PCR-STR typing. Little is being done to address these cases systematically. Instead most media attention has been drawn to previously convicted offenders who were released when DNA typing appeared to exonerate them. Unless the law enforcement and forensic communities acknowledge that little or no attention is being paid to the thousands of unsolved cases which currently exist, offenders who have committed other unsolved crimes will undeservedly be released from prison to repeat their criminal activities.

Alameda County has developed a program to address all unsolved crimes, old or new. The following will briefly discuss this program which has already contributed to solving ten murders between 1975 - 1985. All unsolved murders for the past 30 years will be considered. To prioritize, only murders of female victims will be considered in the first go-round. Cases which have previously been evaluated where evidence of sexual assault has been identified will receive higher priority. Investigative files will be reviewed to determine if there was ever a suspect. All suspects will be addressed directly, if a suspect reference sample is available. If there was no suspect, or if the suspect is excluded, the resulting profile will be searched against the offender database.

Surprisingly, many of the cases reviewed to date involved pre-existing suspects. Of the 10 which have been solved, 9 of them were solved by directly addressing the previous suspect. In every instance the suspect had previously been convicted of a crime which required him to provide biological samples and the cases would have eventually been solved through a database search. Now is the time to develop procedures to address this ever-increasing problem. With each day of delay, more cases become unprosecutable and new, unnecessary victims wait in line for justice to be served.