E32 Preventing DNA Wrongful Convictions: Legal and Judicial Responsibilities

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After attending this presentation, attendees will recognize that the bench and bar have important responsibilities to provide not only legal analysis in criminal cases, but also an independent review of forensic testing results and interpretations. By accepting reported results of forensic testing at face value, attorneys and judges run the risk of overlooking important exculpatory evidence, errors, and misinterpretations.

This presentation will impact the forensic science community by demonstrating how forensic DNA methods and their interpretation can be highly subjective. In order to prevent wrongful charges and convictions, both judges and attorneys must develop an independent capacity to scrutinize the conclusions claimed by laboratory personnel.

Forensic DNA results are susceptible to a wide range of interpretation, particularly where DNA mixtures are concerned. Studies such as NIST MIX05 have demonstrated that differences in the interpretational guidelines used by different laboratories can influence the conclusions claimed in DNA mixture cases. Even DNA analysts from the same lab and using the same interpretational guidelines have reached very different results when examining the exact same data. Given the range of inter- and intra-laboratory interpretational variation, it falls upon the legal profession to provide additional tiers of meaningful review.

In 2009, a homeowner returned to find his house burglarized and a number of firearms stolen from his gun cabinet. The homeowner saw that the cabinet had been pried open and that one of his kitchen knives, the blade bent into a curve, was lying at the foot of the cabinet. Police investigators collected the knife as evidence; both it and a swabbing taken from the handle were submitted for forensic DNA typing.

Employing AmpFℓSTR® Profiler Plus® and COfiler® amplification kits, the laboratory obtained a male profile across the thirteen CODIS DNA loci. Additional alleles were also detected, but these fell below the laboratory's validated reporting threshold of 150 rfu. Lacking any suspect at that time, the unknown male profile was entered into CODIS.

More than a year later, police investigators arrested a suspect they found in possession of firearms which had been stolen in other burglaries in the area. They obtained a search warrant for buccal swabs and submitted these reference samples to the laboratory for comparison. As it turned out, the suspect's buccal swabs were processed by a different DNA analyst than the one who had processed the knife handle swab.

The second analyst never processed any evidence obtained from the knife; relying entirely on the data generated by his colleague a year earlier. Looking at the exact same electropherograms, the second analyst reached an entirely different conclusion. Instead of agreeing with the first analyst that the knife handle represented DNA from an unknown male, the second analyst concluded it was instead a mixture of types from at least two individuals ***and that the suspect could not be excluded as a possible contributor to the mixture***.

These two conclusions are obviously irreconcilable. The first analyst had correctly reported the unknown male profile to CODIS. When the suspect's known profile is compared to the CODIS profile, the suspect is ***excluded*** at eight of the thirteen DNA loci tested. The second analyst had improperly concluded that the sample was a mixture, taking into consideration allelic activity that was clearly below the laboratory's validated interpretational threshold.

The government laboratory in question employed internal procedures for the administrative review of reports, yet the obvious error in this case was not spotted. Nor was it detected by the police investigator who submitted the matter to the prosecutor for a warrant, or by the prosecutor who issued charges. Fortunately for the suspect, the defense team was able to bring the mistake to the prosecutor's attention. All charges were dismissed on the day scheduled for preliminary examination.

While this case might constitute anecdotal evidence of "analyst bias," it also provides a sobering reminder of how easily the criminal justice system can fail. If DNA wrongful convictions are to be prevented, lawyers and judges must have the technical ability to scrutinize claims made by forensic scientists.

DNA, Wrongful Convictions, Mixed Samples

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