D13 Analysis of Three Special Cases of Paternity Testing

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After attending this presentation, attendees will have an understanding of paternity testing analysis and statistics analysis by probability of paternity.

This presentation will impact the forensic science community by validating the analysis of three special cases of paternity testing.

In Colombia, there are daily cases of paternity testing. Forensic genetics laboratory using the ICBF-INMLyCF Convention, have annually on average from 8,000 to 9,000 cases. These include cases with an alleged father, mother and minor reconstruction, cases with genetic profiles of the alleged father from the family, and case information from the exhumation of the remains of the alleged father.

In this paper discuss three special cases will be discussed one case in the determination of maternity and two cases of determination ofmpaternity.

Case 1 – Determination of Two Alleged Mothers: Which one is the biological mother of the child? Analysis was performed in 15 genetic systems and Amelogenin included in the Identifiler Kit Direct and found that the alleged mother 1 (PM1) was included as a birth mother; as to the Alleged Mother 2 (PM2), there was only found an exclusion of the 15 genetic systems. Since in order to report a real exclusion it requires at least three exclusions, we proceeded to the analysis of 13 additional genetic systems included in the kits from Promega PowerPlex CS7 and NGM Select Applied Biosystems, for 28 genetic systems. There were no more exclusions and, therefore, an opinion was issued in the two probabilities for the judge to determine maternity, as there was a degree of kinship between the two alleged mothers (mother and daughter).

Case 2 – Research Paternity Testing: The analysis of 15 genetic systems and Amelogenin included in the Identifiler Kit Direct was performed. Exclusions found two genetic systems and, therefore, an increasing number of genetic systems were analyzed, but found no additional exclusions. As the child was male, the analysis proceeded to chromosome “Y” and found two inconsistencies in the chromosome haplotype “Y.” The question arises: How likely is it that the biological father presented four mutational events?

Case 3 – Research Paternity Testing: We performed the analysis of 15 genetic systems and Amelogenin included in the Identifiler Kit Direct. Three exclusions were found, but one of them was doubtful whether it was by the father or the mother. The number of genetic systems was increased to verify more exclusions (total of 28 genetic systems). As the child was male, testing proceeded with amplification of chromosome haplotype “Y,” finding an inconsistency with the alleged putative father. The question arises: Can a real catalog of paternity be excluded?

Paternity Testing, STRs, Statistic Analysis

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