B139 Examination of Non-Suspect Samples Lacking Sperm Using a Y-STR 10-Plex

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This study indicates that even in the absence of spermatozoa by visual examination, it is possible to obtain a male STR profile by using Y-STRs. Y-STR loci should become an important part of the CODIS database in the future if they can be used in solving non-suspect sexual assaults.

Y-chromosome short tandem repeats (Y-STRs) have gained interest in the forensic community due to their ability to identify the male component of a sample. Y-STRs are particularly valuable in sexual assault cases in which the amount of female DNA overwhelms the amount of male DNA present, thereby making genotype interpretation more challenging. To detect male DNA from compromised sexual assault evidence, ~45 non-suspect samples were analyzed with 10 Y-STRs. The non-suspect samples were positive for the presence of human seminal fluid, but were negative for the presence of spermatozoa by microscopic examination. Complete or partial Y-STR 10-plex profiles were observed in 27.6% and 52.9% of the samples, respectively. On samples yielding partial profiles, results were obtained on an average of 5 loci per sample. Approximately 19.5% of the samples did not yield any results. The inability to obtain results may be due to either an insufficient amount of amplifiable male DNA, PCR inhibition, or unfounded accusations of sexual assault. The results of this study indicate that it is possible to obtain a male STR profile even when there is no visible evidence of spermatozoa. Furthermore, Y-STR loci should become an important component of the CODIS database in the future if they are to be used in solving non-suspect sexual assaults.

Y Chromosome, STRs, Forensics

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