A21   STR Data for Three Closely Linked X-Chromosomal Markers in an Argentinean Population

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After attending this presentation, attendees will be become familiar with X-chromosome STR loci data from an Argentinean population.

This presentation will impact the forensic science community by providing statistical data of forensic interest for three closely linked STR markers located on the X-chromosome in an Argentinean population.

Autosomal (AS) and Y-Chromosome (ChrY) STRs play a pertinent role within forensic science, but can be limited in their applications. Therefore the application of X-Chromosome (ChrX) markers may be necessary in cases where a biological sample from the putative father is unavailable and a sample for analysis is from a paternal relative. ChrX are also useful within trace analysis, complex kinship and incest cases. Furthermore, the use of ChrX makers may be beneficial for anthropological purposes. Despite the numerous applications, ChrX is rarely used within forensic practice.

Forensic application of ChrX markers can be difficult due to the lack of data. Research continues to find suitable markers. Rather than performing analysis with a single STR locus, it is beneficial to utilize a cluster of closely linked ChrX STR markers. These markers could potentially produce stable haplotypes for forensic use.

The study consisted of a metropolitan population database containing ChrX STR markers DXS10079, DXS10074, and DXS10075 that are within a 280-kb region at Xq12. Blood and/or buccal swabs were obtained from 100 males and 100 females from the Argentinean population. The samples were extracted by the chelex method or by using a blood mini kit, quantified by one step real time PCR, amplified and genotyped. Upon determination of the sample's profiles, statistical

analyses were performed. Population analyses tested for deviation from Hardy-Weinberg equilibrium and linkage disequilibrium. Parameters of forensic interest were also determined, including polymorphic information content (PIC) and power of discrimination (PD).The statistics obtained determined the use of the three ChrX markers within an Argentinean population appropriate for forensic usage.

X-   Chromosome, Population Database, STR