

The Texas STR Database: Analysis & Interpretation of Convicted Offender Databank Samples

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The Texas Department of Public Safety began their CODIS program in January of 1996 and began to implement STR typing of convicted offenders in March of 1998. By the end of June, there were approximately 1300 individual STR profiles entered into CODIS. With this much accessible data, it seemed logical to put the information to another use and create a population database using convicted offender databank samples. All of the DNA profiles were obtained through amplification of the Profiler Plus™ loci using the Perkin-Elmer GeneAmp PCR System 9600 with a 10 µl reaction volume. Analysis was performed using the ABI Prism 310 Genetic Analyzer. The only obstacle encountered while analyzing the data for incorporation into the database was the presence of microvariant alleles falling outside of the allelic ladder. The “off-ladder” alleles were recognized and interpreted based on recommendations from Dr. Bruce Budowle and the policies used by the FBI laboratory. The policy assigns an allele value to all “off ladder” alleles that fall outside of the ladder by only one repeat. If an allele is outside of the ladder by two or more repeats, a label of > or < one repeat larger or smaller than the last ladder allele is assigned to these rare alleles. PE Applied Biosystems graciously agreed to analyze the data and produce population statistics for three primary populations: African American, Caucasian, and Hispanic. During their analysis, they completed calculations for allele frequencies at each of the nine Profiler Plus™ loci. Upon completion of these calculations, PE Applied Biosystems forwarded the results to the FBI Laboratory. At that time, Dr. Bruce Budowle further evaluated the data and the results were determined to be statistically valid. As a result, this STR population database will soon be accepted into the Texas Department of Public Safety Crime Laboratory protocol and implemented at the headquarters laboratory and at four of the satellite laboratories.