

Utility of Y-Chromosome Short Tandem Repeat Haplotypes in Forensic Applications^a

REFERENCE: Budowle B, Sinha SK, Lee HS, Chakraborty R: Utility of Y-chromosome short tandem repeat haplotypes in forensic applications; *Forensic Sci Rev* 15:153; 2003.

ABSTRACT: Patrilineally transmitted Y-chromosomal markers have been shown to resolve forensic cases under certain scenarios where autosomal markers provide limited or inconclusive evidence. Several Y-short tandem repeat (Y-STR) loci have been validated for forensic use, and Y-STR haplotype databases for a number of geographic locations are now available in the literature and online. In this review, examples are presented of situations where Y-STR loci can provide valuable supplemental forensic evidence when autosomal STR loci fail or provide little evidence. Also, different methods of interpreting Y-STR forensic evidence in casework analysis are outlined, suggesting that in spite of excessive conservativeness, the counting method is still the most simple and easily defensible method of interpreting Y-STR forensic evidence. While the need for developing more powerful interpretation methods should be considered, it is stressed that expansion of Y-STR databases should focus on increasing sample sizes and the inclusion of more anthropologically defined populations to improve the efficiency of interpretation of Y-STR markers in forensic applications.

KEY WORDS: Y-Chromosome markers, counting method, DNA forensics, haplotypes, match probability, population substructure, short tandem repeats.
