

SIB SHIP ANALYSIS BY 12 X-STR MARKERS

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The unique inheritance pattern of X-STR markers from father to daughter and mother to son and daughter both makes it interesting to explore their usage in sib ship analysis. Unlike autosomal STRs, all the X STR markers are present on the X chromosome in linkage groups and are linked to each other. From father to daughter/daughters, X STRs are inherited as a haplotype without any recombination. In the present study the pattern of inheritance of X STR markers is observed for their utilization in sib ship analysis. 20 cases of brother-brother, brother-sister and sister-sister pairs each were examined to see the inheritance pattern of X STR markers in siblings. It was observed that in all the 20 pairs of sister-sister identification one allele on all the 12 loci was shared by both the sisters (the alleles were inherited as haplotype from father to both the daughters, without any recombination). The similarity of one allele on all the 12 loci in all the 20 sister-sister pairs forms the basis of sister-sister identification. In brother-brother identification cases (X inherited from mother in both) the average of 9 out of 12 loci shared the same alleles in brother-brother pairs. 4 pairs out of 20 shared same alleles on all the 12 loci (100% match), where as 19 out of 20 pairs shared same alleles on more than 50% of loci. In brother-sister identification, where one allele on all the loci of brother and one allele on all the loci of sister is inherited by mother, the average of 9 out of 12 loci shared the same alleles. 3 out of 20 pairs shared same alleles on all the 12 loci (100% matches). 18 out of 20 pairs shared same alleles on more than 50% of loci. The study of inheritance pattern of X-STR in sib ship analysis is promising and may lead to better identification of siblings if studied in detail.

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