Structure and polymorphism of novel X-chromosome short tandem repeat loci in a Chinese Han population

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ABSTRACT. Recently, 5 novel X-chromosome short tandem repeat (X-STR) loci with high degrees of polymorphism were examined. In this study, we investigated the genetic distribution of these loci in a Chinese Han population. The 5 X-STR loci were successfully examined by polyacrylamide gel electrophoresis in a total of 200 unrelated Shaanxi Han individuals (100 males and 100 females). Hardy-Weinberg equilibrium tests revealed no significant deviation from expected values (P > 0.05) for all 5 X-STR loci in the Shaanxi Han population. The loci were named DXS-p11.3, DXS-q12, DXS-q13.3, DXS-q22.1, and DXS-q25 and were found to contain 6, 8, 7, 7, and 5 alleles, respectively. In addition, 17, 21, 18, 19, and 11 genotypes, respectively, were detected in the female samples. The heterozygosities of the 5 X-STR loci were 0.75, 0.74, 0.74, 0.72, and 0.56, respectively. The polymorphic information contents of the 5 X-STR loci were 0.70, 0.69, 0.69, 0.68, and 0.51, respectively. The individual
discrimination values of the 5 X-STR loci were 0.88, 0.86, 0.88, 0.87, and 0.74, respectively. Five new X-chromosome STR loci with high degrees of polymorphism were observed in our lab. The results of this study are important for forensic individual identification, paternity identification, and population genetics research.

**Key words:*** Han population; Short tandem repeats; X-chromosome